SCIENCE

IMPROVEMENTS IN THE PROCESS OF EXTRACTING GOLD FROM ITS ORE.

The very simple metallurgy of gold is no doubt already well known to most of our readers. It consists either in mechanically picking up such pieces of the king of metals as are large enough to be seen and handled; in washing away the lighter portions of the crushed ore, leaving the metal behind in the form of dust; or, in the case of the heaviest ores, in crushing them to fine powder beneath powerful stamps, and agitating the finely-divided matrix with mercury, which dissolves the gold out in the form of an amalgam. The mercury is then distilled off and used again, and the gold remains behind in the metallic form. The process of amalgamation has been carried on with great success in various parts of the world with ores yielding as little as half an ounce of gold per ton, wherever those plagues of the metallurgist, sulphur and arsenic, are not present. Whenever either of these elements exist in an ore—and this is the case with by far the larger proportion of gold ores—they have the effect of tarnishing or "sickening" the mercury, as the miners call it, the consequence being that a large percentage of the gold in the ore is unacted on and lost. The loss of gold from this cause is very great, varying from 30 to 87 per cent. of the metal present. In some experiments by Readwin (one of the first authorities on the subject), two cwt. of rich Clogau quartz gave hardly any gold by the ordinary process, no less than ten ounces of gold remaining untouched in the tailings. On this account it has been found impossible to work several even of the richest mines. In practice, too, there are several well-known cases where grains of gold were visible in the quartz, and little or none was extracted by amalgamation.

Not only is there great waste of gold by the ordinary process, but the "sickening" of the mercury causes it to "flour" or break up into minute particles, which will not again unite and flow away in the wash water. The loss of mercury by "flouring" forms a very considerable item in the cost of extracting the precious metal, even when the ore is comparatively rich.

Numerous metallurgists and chemists have hitherto sought for a remedy for these evils, but without success, and it has remained for Mr. W. Crookes, F.R.S., the talented editor of our scientific contemporary the *Chemical News*, to discover a cheap and simple antidote to the deleterious effects of sulphur and arsenic in gold amalgamation. This gentleman has proved himself one of the first scientific chemists of the day by his discovery of the metallic element thallium, and will now, in addition, render his name equally famous amongst practical metallurgists by his method of amalgamating gold and silver ores.

The process he employs is just one of those simple expedients that are arrived at only after infinite toil and trouble, and which, when they are discovered, make us wonder why they were never thought of before.

Mr. Crookes effects his cure for "sickening" and "flouring" by adding to the mercury a certain portion of metallic sodium. The action, of course, is perfectly clear to the merest chemical tyro. The metal deoxidizes and desulphurizes the particles of mercury, allowing them to run together into untarnished masses, capable of dissolving every particle of gold or silver contained in the ore. Through the kindness of Mr. Crookes, we have been permitted to be present at several most interesting experiments on the power of sodium in restoring mercury to its primitive condition. Want of space compels us to limit a selection to the two following.

An ounce of mercury was shaken up with water strongly impregnated with sulphuretted hydrogen. After a short time, the metal broke up into particles the size of a pin's head, and refused to coalesce. The addition of a piece of sodium amalgam, the size of a pin's point, caused them to run together into masses the size of peas; and a second portion of the same size completed the purification of the mercury, the globules rushing together instantaneously, the dirty cloud clearing away from the surface of the metal as if by magic.

Two and a half grains of gold were triturated for two hours with 10,000 grains of silver sand, and 100 grains of mercury, and 1,000 grains of copper pyrites. The amount of gold recovered was less than 50 per cent. The same experiment was repeated with the addition of sodium to the mercury, which increased the percentage of gold recovered from 50 to over 90 per cent.

The importance of this discovery in relation to gold mining can hardly be over-estimated. In different parts of the world, the British Isles included, there exist millions of tons of gold quartz utterly unworkable on account of the presence of pyrites in one form or another. In Wales alone it is estimated that at the present time there are lying waste no less than three millions of tons of gold ore that may be profitably worked by Mr. Crookes's process, to say nothing of mountains of the same material still remaining untouched.

In conclusion, we wish Mr. Crookes the success he deserves in reaping the fruits of his very valuable discovery, and beg to return him our sincere thanks for the kind way in which he has admitted us continually to his laboratory during the progress of his experiments, and has placed even his private note-book at our disposal.

THE MONTH

TRIAL OF DR. PRITCHARD.

As the public journals have given full reports of the extraordinary trial at Edinburgh, which resulted in the conviction of Dr. Edward William Pritchard of the murder of his wife and mother-in-law by poison, we shall confine our attention to the scientific evidence.

Mrs. Pritchard's illness began in October with frequent sickness. She left her home in Glasgow in November to visit her mother in Edinburgh, where she speedily regained her health. She returned to Glasgow at Christmas, and shortly after became ill again. She died on March 18, and her husband informed the registrar that her complaint had been gastric fever. During her illness she was visited once by Dr. W. T. Gairdner, who found her in a violent state of excitement, with spasmodic contraction of the hands. He concluded that she was then under the influence of stimulants. Dr. James Paterson also saw Mrs. Pritchard, and suspected that she was under the depressing influence of antimony, and prescribed for her accordingly. He informed the Court that, although he believed she was being poisoned, the *etiquette of the profession* prevented him going to see that his prescription was being followed. The lady was not his patient. ~~Dr. James Moffat Cowan, a cousin of Mrs. Pritchard, saw her on February 11, but had no suspicion that she was suffering from the effects of poison.~~

Dr. Douglas Maclagan, the learned Professor of Medical Jurisprudence at the University of Edinburgh, and Dr. Littlejohn made a post-mortem examination of the body of Mrs. Pritchard, and reported that it presented no appearances of morbid action capable of accounting for death. Subsequently Dr. Maclagan, with the assistance of Dr. Littlejohn and Dr. Arthur Gamgee, made a chemical examination of the body, and obtained unmistakeable evidence of the presence of antimony in the contents of the intestines, in the bile of the gall-bladder, in the blood, and in the liver. He also detected the poison in the deceased's urine, and in some stains on her linen. The processes of Reinsch and Marsh were employed to ascertain the presence of antimony, and in some cases quantitative determinations were made by weighing the sulphide precipitated by sulphuretted hydrogen. The amount of sulphide obtained from seven ounces of urine corresponded to nearly one-fourth of a grain of tartar emetic; that from four drachms of the bile, to more than one-tenth of a grain; and that from a portion of the liver weighing less than four ounces, to one quarter of a grain of tartar emetic. The fact that the antimonial compound found in the intestines was soluble in water convinced Dr. Maclagan that it was the tartrate of antimony and potash, that is, tartar emetic, as the only other commercial preparation of antimony soluble in water is the chloride, a dark-brown, ~~corrosive fluid, totally unsuited for internal administration~~. The results of the chemical investigation led Dr. Maclagan to the following conclusions:—

"1. That Mrs. Pritchard had taken a large quantity of antimony in the form of tartar emetic.

"2. That, having regard to the absence in her case of any morbid appearances sufficient to account for death, and to the presence in it of a large quantity of a substance known to be capable of destroying life, her death must be ascribed to the action of antimony.

"3. That it is most unlikely that this poison was taken in a single large dose. Had this been the case, I should have expected to have found some more decided evidence of irritant action in the mouth, throat, or alimentary canal.

"4. That, from the extent to which the whole organs and fluids of the body were impregnated with it, it must have been taken in repeated doses, the aggregate of which must have amounted to a large quantity.

"5. That, from the large amount found in the liver, from its ready detection in the blood, and from its being found passing so copiously out of the body by the bile and urine, it is probable that some of the poison had been taken at no greater interval than a period of a few days previous to death.

"6. That I am inclined to believe that it had not been administered, at all events in any great quantity, within a few hours of her death. Had this been the case, I would have expected to have found at least some traces of it in the contents of the stomach, and more in the contents of the intestines; whereas none was found in the former, and the amount found in the latter seems to be amply accounted for by the bile impregnated with the poison discharged into them from the liver.

"7. That the period over which the administration had extended cannot be determined by mere chemical investigation, but must be deduced from the history of the case, with which I am unacquainted."

Professor Penny, of Glasgow, made an independent examination of portions of Mrs. Pritchard's body, and discovered antimony in the contents of the intestines, in the liver, kidney, spleen, stomach, rectum, brain, and blood. He also detected mercury in the spleen, heart, blood, and kidney. He obtained no evidence of the presence of any other metallic poison, or of any organic poison.

The scientific evidence respecting the poisoning of Mrs. Taylor was equally conclusive. Mrs. Taylor, who came to Glasgow to nurse her sick daughter, died on February 25. Dr. Paterson was called in shortly before her death, and was told by Dr. Pritchard that she had been suddenly taken ill while in the act of writing a letter. From the contraction of the pupils, and other symptoms exhibited by the dying lady, Dr. Paterson concluded that she was under the influence of opium or some other powerful narcotic. He declared his opinion to Pritchard, who thereupon stated that the old lady was in the habit of regularly using Battley's sedative solution; that she had a few days before purchased not less than a half-pound bottle of the medicine; and that he had no doubt but that it was very likely that she might have taken a good "swig" of it.

Dr. Paterson refused to certify the cause of death, and wrote to the registrar, informing him that he considered the case mysterious. Pritchard then sent a certificate to the registrar, attributing the death of his mother-in-law to apoplexy.

Dr. Maclagan made a most careful examination of the old lady's body, and submitted the principal organs to chemical analysis. The conclusions arrived at by him were:—

"1. That Mrs. Taylor had taken a considerable quantity of antimony in the form of tartar emetic.

"2. That, having regard to the absence of any morbid appearances sufficient to account for death, and to the presence in the body of a considerable quantity of a substance known to be capable of destroying life, her death must be ascribed to the action of antimony.

"3. That it is most likely that this was not taken in a single large dose. Had this been the case, I should have expected to have found some morbid appearances indicative of the irritant nature of the drug. It appears to me more probable, from the amount found in the body, that it must have been taken in a succession of doses, not great enough individually to produce local irritant effects, but amounting in the aggregate to a large quantity. It is right, however, to add that a single copious dose, not large enough to produce marked local effects, might give rise to fatal depression of the system in a woman aged seventy-one, whose heart was enlarged and somewhat dilated.

"4. That, from the fact that antimony was found copiously in the liver, was readily detected in the blood, and existed to the amount of a quarter of a grain in the stomach, some at least of the tartar emetic had been taken probably within a few hours before death.

"5. That, from mere chemical investigations, I am unable to say over what length of time the administration of the antimony had extended, supposing it, as I believe, to have been taken in a succession of doses. This can be learned only from a consideration of the history of the case, with which I am unacquainted."

Here again Professor Penny's experiments upon portions of the body completely confirmed those of Dr. Maclagan.

Several articles taken from the prisoner's house were submitted to analysis by Professor Penny. In a paper package containing 2,850 grains of tapioca the presence of antimony, in the form of tartar emetic, was unequivocally detected. Its amount was found to be equal to 4·62 grains in the pound of tapioca. Not a trace of mercury was detected. A bottle containing one ounce and five drachms of a dark brown liquid, having the odour and general appearance of Battley's solution of opium, was found to contain an appreciable quantity of antimony in a soluble form. The amount was equal to 1·5 grain per fluid ounce of liquid. It contained no mercury.

The other articles which might be supposed to bear upon the case were:—A mixture of tartarized antimony and arsenious acid, in equal proportions by weight; two separate portions of tartarized antimony; a lump of opium; and small quantities of calomel, of aqueous solution of corrosive sublimate, and of the tinctures of aconite, conium, and digitalis. Some cheese and a second package of tapioca were tested for antimony and mercury, but no evidence of the presence of these metals was obtained.

Professor Penny's evidence respecting the contents of the bottle found in Mrs. Taylor's pocket after death was most important. Suspecting the presence of some other poison besides antimony in the Battley's solution, he instituted further experiments, and succeeded in obtaining tolerably clear evidence of the presence of aconite. He detected the latter poison by applying an extract, obtained by evaporation, to his tongue, when it produced the tickling and benumbing sensation characteristic of aconite. A further portion was treated with ammonia and diluted hydrochloric acid, on the evaporation of which it produced the same sensations strongly and distinctly. He had added ten per cent. of Fleming's tincture of aconite to Battley's solution, which produced the same sensations very much stronger. He concluded that the solution given to him for examination contained more than five and less than ten per cent. of tincture of aconite. Witness then described a series of experiments made by him on rabbits with Battley's solution, as purchased by him in variou places in Glasgow and London, with the solution with tinctur of aconite added by himself, and with the mixture unde investigation. The various preparations had been injecte under the skin of the back of the rabbits, between the skin and the muscles. With the genuine Battley the rabbit assumed a prone position, resting on belly and chest, and th head invariably resting on the ground. The fore legs wer either sprawling or gathered under the body, the hind leg lying extended sideways; the eyes remained open, and th pupils were natural and not contracted. The breathing wa invariably gentle; no cries were uttered; no convulsions c spasms of the body were apparent. There was a complet condition of inanity; and, with the exception of the ope state of the eyes, the animals seemed to be in a state of perfe sleep. In this state the animals remained for several hour and then gradually recovered. The effects produced upc the animals by Battley's solution containing aconite presente a striking contrast to the symptoms resulting from pu Battley. Soon after the injection the animal became restle and uneasy, and then began to crouch, resting on its flank, the hind legs extended laterally, and keeping its head erect. It next assumed the sitting posture, in an attitude of watchful expectancy, and commenced to twitch its lips and move its jaws, as if chewing. Suddenly it staggered and reeled over, quickly regaining its feet; saliva began to flow from the mouth, and soon after piteous and peculiar choking cries were emitted. The head was retracted, and the breathing was painfully laborious. Convulsions now set in, followed by intervals during which the limbs were quite relaxed; and the animal lay helpless on its side. Frantic leaps were now frequently taken. A state of utter prostration then occurred, variable in duration; and then a strong convulsion came on, during which, or immediately after, the animal expired, the limbs becoming instantly relaxed. The results produced by this bottle corresponded in every respect with the effects produced by the above mixture, and were so closely similar that it was impossible to detect any essential difference in them. In the case of the small rabbits, the experiments were made at the same time; and without knowing beforehand, it would not have been possible to distinguish the animal under the influence of this Battley from the one under the influence of the mixture of Battley and the aconite. These results left no doubt in his mind, joined with the sensations, that that bottle contained aconite. All the other experiments, which were numerous and varied, confirmed these results.

After hearing Professor Penny's evidence, the Court recalled Dr. Maclagan, who stated that, although he had attributed Mrs. Taylor's death to the effects of antimony, he was inclined to think that her last symptoms might have been produced by aconite. The falling head, the almost imperceptible breathing and pulsation, and the torpid condition of the brain, were indications such as would have resulted from aconite; but aconite, like most poisons, varied a little in the effects it produced on different individuals. Still, these were symptoms likely to have been produced by aconite. Antimony passed pretty rapidly out of the system by vomiting and purging, weakening and ultimately destroying the patient. Opium might lessen the tendency to vomit, but a pernicious effect on the muscular tissue would remain. He had never known a patient under the influence of aconite and antimony at the same time; but if opium, aconite, and antimony were administered so as to be operating at the same time, the symptoms which Mrs. Taylor had exhibited were such as he would have anticipated, because the aconite, being the most powerful, would predominate. ~~There was nothing in her symptoms to indicate apoplexy.~~

The evidence of the chemists who supplied Pritchard with his drugs cannot fail to be interesting to the readers of this journal.

John Campbell, manager of the Glasgow Apothecaries' Company's branch in Sauchiehall-street, said the prisoner had a running account with that establishment, and read entries proving the purchase by him of several quantities of tincture of aconite, tartarized antimony, and other poisons. ~~On three occasions he had obtained~~ one ounce ~~of tincture of~~ aconite, and on two occasions one ounce of tartar emetic. Witness deposed that one ounce of tartarized antimony was an unusual quantity to sell. Two grains was the ordinary dose for an emetic, and the ounce contained 435½ grains. He had never sold an ounce of tartarized antimony to any other medical man in Glasgow, and the quantity purchased by the prisoner struck him. Two ounces would serve their business for twelve months, and they had a very large dispensing business. The quantity of aconite purchased was also unusual, and one or two ounces would cover all they sold of it in a twelvemonth. The prisoner had also purchased a very large quantity of chloroform—132 ounces between July and December, which exceeded all their sale to other persons. Witness had been a dispensing apothecary for twenty-three years, and had never sold so much poison to any ~~medical man.~~—Identified several phials produced.

John Currie, chemist, Sauchiehall-street, spoke to having furnished the prisoner in February and March with several quantities of solution of morphia, tincture of aconite, and solution of atropine. ~~Several of the quantities had been sold by his assistant, but~~ he had no doubt they had all ~~been supplied.~~

John Macmillan, assistant to Murdoch Brothers, deposed to having filled a bottle with Battley's solution for Pritchard's servant, Mary McLeod, on the 28th of February. Cross-examined, he said he had previously ~~filled the~~ same bottle for an old lady, the circumstance being fixed in his memory because she told him to cork it well, as she had once lost a quantity of it. The purchase of the solution by Murdoch Brothers was proved by Mr. Barron, of Barron, Harveys, Becketts, and Simpson, wholesale druggists, London, and by Mr. Watts, of Battley and Watts, proprietors of the recipe. The last-mentioned witness declined to state the exact composition of the solution, but said it was a watery solution of opium, and contained neither antimony nor aconite, nor any other poisonous ingredient except opium.

There were three witnesses ~~for the defence, whose evidence may be fitly recorded here.~~

John Simpson, druggist, of Duncan, Flockhart, and Co., Edinburgh, spoke to frequent purchases of Battley's solution having been made from them in Dr. Pritchard's name ~~by a person in Mr. Taylor's employment.~~ In their retail trade they dispensed not less than 80 oz. of Fleming's tincture of aconite in one year. Witness had frequently made up mixtures containing half an ounce. He would not consider it unusual for a medical man to purchase an ounce at a time. In cross-examination, witness said there was neither antimony nor aconite in the Battley's solution they sold, and that it was quite impossible they could get into it, even by accident. In reply to the Court, he said the mixture with aconite he spoke of was principally used for heart-disease, ~~and that one or two drops of aconite were a dose.~~

Thomas Fairgrieve, dispensing chemist, Edinburgh, also deposed to Mr. Taylor having made frequent purchases of Battley's solution from him. Sold not less than 50 oz. of tincture of aconite in one year. ~~It was generally made up as a liniment, and in that form~~ he had made up prescriptions containing two fluid ounces of it. In cross-examination, witness said it was not common to sell it unmixed to medical men, though he had done so. He did not think he had ever sold it for experiments in the laboratory. Less antimony was sold now since croton oil came into use, but there was scarcely a day that antimony was not ordered in some shape or other—sometimes in the shape of tartar emetic dissolved in wine. He might sell one or two ounces in the course of a year, in addition to large quantities mixed with lard sold to veterinary surgeons. The quantity in a prescription for internal use was generally small.

James Thomson, formerly in Mr. Taylor's employment, deposed to having purchased Battley's solution frequently for Mrs. Taylor. The last occasion was the night before she left for Glasgow.

In addressing the jury for the prisoner, Mr. A. R. Clark combatted the arguments by which the Crown counsel had endeavoured to prove that a medical man had been the murderer. He asserted that Mary McLeod was found in connection with every act of administering food supposed to be poisoned, and until her innocence was established, it was wrong to convict the prisoner of the crime with which he was charged. With regard to the Battley's solution, which had been purchased for Mrs. Taylor by Mary McLeod, there was no proof that the prisoner knew where it was, or had access to it. There was no proof that the aconite had been put into the bottle before Mrs. Taylor died, and though it was of very little consequence what he had done with it after her death, it would have been easy for him to throw it away. The bottle lay openly about; it was not locked up, and remained in the house till a month after, and any person might have had access to it: and yet all that could be suggested to prove that the prisoner put in the antimony and the aconite was that they might trace—might probably trace, the finger of a medical man. As to the administration of poison, Mr. Clark maintained that there was nothing whatever in the proofs on which the prosecution had to rely to show that through the prisoner's hands, or his instrumentality, had poison been administered to his wife. In the case of the cheese supposed to have been poisoned, it was taken up to her by Mary McLeod. The egg-flip had been prepared by the doctor's instructions, and there was no proof that there had been poison in it at all; and here, too, Mary McLeod was introduced, for it was carried up and administered to Mrs. Pritchard by her, and by her account Mrs. Pritchard was much the better for it. Therefore it was perfectly inconceivable that there was anything in that egg-flip which caused Mary Paterson to suffer; it might have been from something else that she took. She did not blame the egg-flip. She spoke to the doctor of her illness, but did not mention the egg-flip in connection with her illness; and yet she told the Court that she noticed the moment she took it that it had a very bad taste. It was a very curious thing if the doctors thought there was antimony in the egg-flip that Dr. Maclagan in his report should have stated that tartarized antimony was a comparatively tasteless substance. The learned counsel concluded his address with a pathetic appeal to the jury for a verdict of acquittal.

This appeal, as our readers are aware, did not counteract the effect of the evidence brought forward by the counsel for the Crown, and the jury returned an unanimous verdict of *Guilty* on both charges.

The Lord Justice Clerk sentenced the prisoner to be executed at Glasgow on the 28th inst.

CONFESSION OF DR. PRITCHARD.

Since the above was written, the convict has made the following confession:—

"I, Edward William Pritchard, M.D., M.R.C.S.E., and L.A.S., &c., hereby make in writing, in the presence of the Rev. R. S. Oldham, M.A., the following confession, for transmission by him to the proper authorities:—It was when my wife was at Kilmun, in the summer of 1863, that I first became intimate with the girl Mary M'Leod, sleeping with her at my house, at 22, Royal-crescent. This continued at intervals up to the time of our removal to 131, Sauchiehall-street. She became pregnant in May last [year], and with her own consent I produced a miscarriage. I have reason to believe that Mrs. Pritchard was quite aware of this, and rather sought to cover my wickedness and folly. My mother-in-law, Mrs. Taylor, came last February to our house, and caught Mary M'Leod and myself in the consulting-room; and the day before her death, having apparently watched us, she said to me in the same room, 'You have locked her into the cupboard,' which was true; but nothing more passed. I declare Mrs. Taylor to have died in the manner I have stated; and I now believe her death to have been caused by an overdose of Battley's solution of opium. The aconite found in that bottle was put in by me after her death, and designedly left there in order to prove death by misadventure in case any inquiry should take place. Mrs. Pritchard was much better immediately after her mother's death, but subsequently became exhausted from want of sleep. I accounted for this by the shock produced by her mother's death; and hardly knowing how to act, at her own earnest request, I gave her chloroform. It was about midnight. Mary M'Leod was in the room, and in an evil moment (being besides somewhat excited by whisky) I yielded to the temptation to give her sufficient to cause death—which I did. I therefore declare before God, as a dying man, and in the presence of my spiritual adviser, that I am innocent of the crime of murder, so far as Mrs. Taylor is concerned, but acknowledge myself guilty of the adultery with Mary M'Leod and the murder of my wife. I feel now as though I have been living in a species of madness since my connection with Mary M'Leod, and I declare my solemn repentance of my crime, earnestly praying that I may obtain Divine forgiveness before I suffer the penalty of the law.

"EDWARD WILLIAM PRITCHARD.

"Witnesses.—John Stirling, Governor; R. S. Oldham, and John Mutrie.

"North Prison, Glasgow, July 11, 1865."

LAW AND CRIME.

A STREET ACCIDENT.—MENETRY AND WIFE *v.* GREEN.

THIS case came before Mr. Justice Mellor, at Guildhall, on the 3rd inst. The male plaintiff was a chemist and druggist at Rotherhithe, and his wife was studying medicine at the College in Norfolk-street, with a view to a diploma. The defendant was a greengrocer and carman. On the 5th of February, the wife was being driven by a servant boy in a pony phaeton. On going along Tooley-street and approaching the entrance to the London-bridge Station the phaeton was pulled up to allow an omnibus to pass, when the defendant's van or waggon came behind, and although the driver was cautioned by the sergeant of police on duty there that if he did not take care he would upset the phaeton, he did proceed, and struck the hind wheel of the phaeton, and upset it. Mrs. Menetry and the lad were thrown out, her dress and bonnet were covered with mud and were spoiled, and the boy's livery was injured so that it could not be again worn. The wife was dragged from under the carriage and was taken home. In two or three days a nervousness came on, and medical aid was called in, and the charge for that attendance was £5. The carriage was injured, and had been repaired at a cost of £7. The defendant called in a few days after the accident, and expressed his satisfaction that Mrs. Menetry was not much hurt, and spoke of making compensation; but subsequently, as the plaintiff asserted, he became very abusive. The action was then brought, and the liability was denied, and the damages were said to be extravagantly estimated.

The evidence was of the usual contradictory character.

The jury retired for some time, and then returned a verdict for the plaintiff—Damages, 18 guineas.

POISON AT THE COMMUNION.

A Swedish clergyman, the Rev. Mr. Lindbäck, has been sentenced to death for poisoning at least three of his parishioners while administering to them the Sacrament of the Communion. It appears that when arrested he in the first instance solemnly denied having done anything that could have been the cause of the death of the persons who are said to have been murdered; but, although for a time he seemed to be determined to set at defiance all who had come forward as his accusers, he ultimately showed a disposition to make a full confession, endeavouring, however, at the same time, to obtain in return the privilege of being left at large for eight days for the purpose of putting his affairs in order. To such a condition the magistrates could not of course agree; but it was arranged that he should be taken to his own house, and kept under proper surveillance there, until he could be conveyed to the prison at Carlstad. During this temporary confinement he made an attempt to commit suicide by opening a vein with a lancet; but this had only the effect of increasing the vigilance of his guards, who have never since for a moment lost sight of him. When pu upon his trial, he at once declared his readiness to plead guilty to the charge brought against him of having given poison in the Sacramental wine to Nils Pattersson, the widow Carin, and Daniel Anderson, the last of whom, however, had not fallen a victim to his attempt. He coul assign no other reason for having done so but a desire t obtain for his parish the riddance of the burden which th maintenance of those indigent people had entailed upon it but while he also confessed that he had poisoned the retire merchant, M. Lysen, who lodged in his house, he admitte that in that instance the hopes of gain, by a succession to th estate of his victim, had been the motive which had induce him to commit the crime. In that case he admitted that th poison had been given on three consecutive evenings in mil and had consisted of arsenic, which he had extracted from preparation that had been made for the destruction of rat Before being taken into court he was deprived of his eccl siastical vestments; and after sentence was pronounced, he the first instance addressed the judge, and then the govern of the province, concluding with a speech to the crowd th had assembled, in which he admitted that in his youth had yielded to temptations which had led him to the s and miserable condition in which he was then placed, a strongly urged them to take warning by his fate, asserti at the same time, that though now deprived of all hope much longer existence on earth, he still looked with con dence to Heaven for pardoning mercy. After this addr he bowed most profoundly, and left the bar in charge of guards, with the same dignity and calmness with which had been accustomed to descend from the pulpit in parish on which he has brought so much misery.

CORONERS' INQUESTS.

LONG SUTTON.—MERCURIAL PILLS.

WE extract the following report from the *Stamford Merc* of the 23rd ultimo:—

On Monday morning last a very painful feeling was exc by the death of Mr. Robert Wright, an industrious m who had made himself well known in the neighbourhood his successful growing of, and dealing in, potatoes. Up to within a few weeks of his death he appeared in robust health. At the beginning of the present month he felt a necessity for medicine, and procured some pills. A fortnight afterwards he was confined to his bed through extreme illness, and died on Monday morning; the public, through various reports, becoming impressed with the idea that his sudden and lamentable death was caused or hastened by some error in the administration of the pills. An inquest was held on the body by Mr. Edwards on the same day. Mr. E. P. Peele, druggist, who sold him the pills, said the deceased came to him on Friday the 2nd inst., particularly requesting to have a strong dose of medicine. He gave him six pills, each composed of two grains of calomel and two grains of colycinth, strictly telling him that he was to take two pills only. It appears he took the six pills in the following twenty-four hours. Dr. Hodgson deposed that he attended the deceased on Monday the 5th for a slight attack of salivation, from which he partially recovered; but he afterwards took a severe cold, and was attacked with inflammation of the lungs, which, together with the effect of a diseased liver, was in his opinion the cause of death. The inquiry was adjourned to Wednesday afternoon, Mr. Peele stating that he could then produce evidence corroborative of this statement as to the directions he gave the deceased with respect to the pills. The adjourned inquest was resumed on Wednesday afternoon at the Station inn before Mr. Edwards.—Mr. Caparn attended on the part of the deceased's friends, and Mr. Mossop for Mr. Peele.—Mr. Horatio Wrout deposed that he heard Mr. Wright ask for strong pills, and distinctly heard Mr. Peele give directions that two only were to be taken.—Thomas Garner said he gave the pills to Mr. Peele for the deceased, and heard the same directions.—Mr Caparn cross-examined Dr. Hodgson and Mr. Peele on their former testimony at considerable length, but elicited no further facts. A post-mortem examination, by desire of the friends of the deceased, took place on Wednesday morning by Messrs. H. and A. B. Ewen and Dr. Hodgson. There was found disease of the kidneys, congestion of the liver, and inflammation of the right lung, which latter had come on during he last few days of his life.—Mr. Ewen corroborated the evidence of Dr. Hodgson, and agreed with the report of the post-mortem examination that death was caused by the combined effects of the above diseases, accelerated by the deceased having taken so many of the pills. The coroner shortly summed up the evidence adduced. The jury retired, but after more than an hour's consultation were unable to agree, it being understood that a portion were in favour of a verdict of death from natural causes, and the remainder of one of "death from natural causes accelerated by an overdose of mercury."

[We have been privately informed that this strange investigation lasted six hours, and that the division of the jury showed nine for "death from natural causes," and three for "death from natural causes accelerated by an overdose of mercury."—Ed. C. & D.]

MALTON.—THE OLD MISTAKE.

A very melancholy event has occurred at Malton, whereby Mr. William Moorhouse, a tradesman of the town, has met sudden death. From a coroner's inquiry it was ascertained that death had resulted from a very strong dose of oxalic acid; and from the evidence of deceased's widow it appeared she had seen her husband that morning drink what was supposed to be a cupful of Epsom salts, and at once retire to bed, where he died a very distressing death in about an hour. The cup from which Mr. Moorhouse had drank contained crystals which proved to be those of oxalic acid, one of the fluids constantly in use in saddlery, deceased's trade. The jury found that the deceased had poisoned himself by drinking oxalic acid in mistake for Epsom salts.

GOSSIP.

The prizes for Analytical Chemistry at University College, London, for the session 1864-5 were distributed as follows:—Gold Medal and First Certificate.—J. J. Bourcy, of London. Certificates.—2. Charles Graham, of Berwick-on-Tweed. 3. Manning Prentice, of Stowmarket. 4. Y. Yamaou, of Japan. 5. K. Endo, of Japan.

James Steen Harvey, chemist and druggist, Birmingham, has made an assignment of all his estate and effects for the benefit of his creditors. Trustee, Mr. E. Morrall, Derby.

Messrs. Hartley and Bartliff, chemists and druggists, New Malton, have dissolved partnership, and the business in future will be conducted by Mr. Hartley only.

The firm of Burgess, Willows, and Co., wholesale and retail chemists and druggists, 101, High Holborn, London, is dissolved by effluxion of time. All claims will be settled by Mr. John Willows.

James Henry Alcock, wholesale druggist, 37, Withy-grove, Manchester, has agreed to pay his creditors a composition of 10s. in the pound, by three equal instalments. Trustee, Mr. W. Alcock, Manchester.

John Corbett, chemist and druggist, Darlaston, has agreed to pay a composition of 7s. 6d. in the pound, by three equal instalments. Trustee, Mr. E. Glover, Wednesbury.

Messrs. R. R. White and Son, chemists and druggists, Dursley, have dissolved partnership, and the business in future will be conducted by Mr. Fitzherbert White on his own account.

John Swain Roberts, chemist and druggist, Rhyl, has agreed to pay his creditors a composition of 5s. in the pound.

On the 23rd ult., a fire broke out in the chemical stores of Mr. Atkins, Castle-street, Salisbury, when damages were done to the extent of about £500. The loss is covered by insurance.

Samuel Nicholson, chemist and druggist, Fakenham, has made an assignment of all his estate and effects for the benefit of his creditors. Trustee, Mr. J. N. Mottram, Norwich.

Samuel Waddington, chemist and druggist, Heywood, has agreed to pay his creditors a composition of 10s. in the pound, in four equal instalments. Trustee, Mr. M. Smith, Heywood.

Mr. J. H. Pearson, chemist and druggist, has entered upon the business lately in the occupation of Mr. F. G. Buckle, at 1, Narrow Bridge-street, Peterborough.

Mr. G. Robson, of the firm of Robson and Peele, has been appointed Local Secretary at Durham to the Pharmaceutical Society of Great Britain, for the ensuing year.

The firm of H. W. Parr and Co., manufacturing chemists, Meadow's-bridge, Wigan, has been dissolved. Mr. William Henry Bennett will in future carry on the business.

Mr. Brewster, pharmaceutical chemist, Cambridge, has removed his business from 42, Sidney-street, to 20, Crescent.

Mr. Wells has retired from the firm of H. W. Allen and Wells, chemists and druggists, King's Lynn. Mr. Allen will in future carry on the business on his own account.

Mr. T. B. Stead's tender has been accepted for the supply of drugs to the Leeds Union.

Mr. John Cossey has succeeded Mr. Spatchett, chemist and druggist, in his business at St. John's, Madder Market, Norwich.

Mr. W. H. Wallworth will in future carry on the business of dispensing chemist lately conducted by Messrs. Foulkes and Wallworth, 38, Argyle-street, Birkenhead, Mr. Foulkes having retired from the firm.

W. M. Williams, R. T. Bartlett, and J. L. Gadd, chemical bleachers, West Ham, have assigned their estate and effects to trustees.

At Llantrisant, Glamorganshire, Mr. John D. Slade has entered upon the chemist and druggist's business lately carried on by Mr. J. W. Hopkins.

In our last we erroneously stated that Mr. John Knight had left the City-road for Crown-street, Clerkenwell; whereas he has really removed from his old premises, 30, Crown-street, Finsbury, to 91, City-road.

GAZETTE.

BANKRUPTS.

Cobb, John, Brighton, soda water manufacturer.
Redfern, William, Loughborough, druggist.

PARTNERSHIPS DISSOLVED.

Allen, H. W., and Wells, King's Lynn, chemists.
Bagshaw and Harris, Belstead, Suffolk, makers of cattle medicine.
Burgess, Willows, and Co., High Holborn, wholesale druggists.
Foulkes and Wallworth, Birkenhead, dispensing chemists.
Hartley and Bartliff, New Malton, chemists.
White, R. R. and Son, Dursley, Gloucestershire, chemists.
Wright and Francis, Old Fish-street, wholesale druggists.

SCOTCH SEQUESTRATION.

Black, R. M., Glasgow, drysalter.

THE CHEMIST AND DRUGGIST

LONDON, JULY 15, 1865.

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THE REPORT ON THE CHEMISTS AND DRUGGISTS' BILLS.

BY order of the House of Commons, the Special Report received from the Select Committee on the Chemists and Druggists' Bills has been printed, together with the Proceedings of the Committee and the Minutes of Evidence.

Taking this interesting parliamentary paper as our sole guide, we will endeavour to give our readers an impartial account of the labours of the Committee.

The members nominated to form the Committee were: Sir Fitzroy Kelly, Sir John Shelley, Lord Elcho, Mr. Baring, Dr. Brady, Mr. Hastings Russell, Mr. Charles Wynn, Mr. Ayrton, Mr. Sclater-Booth, Mr. Cox, Mr. Schneider, Sir James Fergusson, Mr. Charles Forster, Mr. Roebuck, and Mr. Black.

The first meeting was held on the 5th of May, when Mr. Baring was called to the chair. After some deliberation, a resolution was passed instructing the chairman to apply to the House for power to send for persons, papers, and records.

On the 11th of May the Committee examined Dr. Alfred Swaine Taylor, Professor of Medical Jurisprudence and Chemistry at Guy's Hospital, and Mr. John Simon, Medical Officer of the Privy Council, as to the necessity of legislation. The first witness was of opinion that some restriction on the sale of drugs was required for the protection of the public, and contended that there was no insuperable difficulty in inserting in a schedule those drugs which ought to be sold only by qualified persons. His evidence comprised many interesting facts and valuable suggestions. Mr. Simon was of opinion that the business of the chemist and druggist—and therewith the sole authority to sell poisons—should not be open, except to persons who had passed a sufficient examination.

On the 15th of May, further evidence in favour of legislation was received from Dr. Richard Quain, one of the Crown Members of the Medical Council, Dr. James Arthur Wilson, and Mr. John Mackay, the Honorary Secretary to the Pharmaceutical Society in Edinburgh.

On the 18th of May, the Committee deliberated with closed doors.

Mr. AYRTON moved, "That no compulsory examination or registration under the Bills referred to the Committee should be required of persons now carrying on the trade of Chemists and Druggists." This was agreed to without a division.

Sir FITZROY KELLY then moved, "That the Bill do provide that no person, after a day to be fixed by the Bill, shall, under a penalty, become a chemist and druggist, and exercise his trade in the compounding of medicines from prescriptions by medical men, or in the sale of dangerous drugs, until he shall have passed an examination."

Lord ELCHO proposed to amend the question so that it might stand thus: "That the Bill do provide that all persons at present carrying on the business of chemists and druggists shall be registered on payment of a moderate fee; and, after a day to be fixed by the Bill, no person shall be entitled to register as a chemist and druggist, or assume any title purporting to be so registered, without having passed a certain prescribed examination." The Committee divided, and the amendment was rejected.

Mr. AYRTON then proposed a second amendment, which thus modified the original question: "That the Bill do provide that no other person shall, after a day to be fixed by the Bill, sell certain dangerous drugs, to be scheduled in the Bill, unless he shall be examined and registered." The Committee again divided, and the amendment was carried by the Chairman's casting vote. The members who voted for this amendment were Sir John Shelley, Lord Elcho, Mr. Black, Mr. Schneider, and Mr. Ayrton. Those who voted against it were Sir Fitzroy Kelly, Sir James Fergusson, Mr. Sclater-Booth, Mr. H. Russell, and Dr. Brady.

Mr. AYRTON then moved "That the Committee do proceed on this day week with the Chemists and Druggists' (No. 2) Bill." The question was put and agreed to.

The next meeting was not held until the 1st of June, when the Committee proceeded with the examination of Bill No. 2 (the measure proposed by the United Society). The preamble having been postponed, the Committee went through the Bill clause by clause. Clause 1 was agreed to; clause 2 postponed; clause 3 amended, and, after a division, allowed to stand as part of the Bill; clauses 4, 5, 6, and 7, were amended and agreed to; clause 8 was amended and postponed.

On the 12th of June the Committee resumed the examination of the United Society's Bill. Clause 8 and the remaining clauses were put and negatived. The preamble was passed. After some deliberation Mr. Schneider proposed "That Mr. Buott be called in and examined;" but the question was put to the meeting, and negatived.

Lord ELCHO then moved, "That inasmuch as there appears to be little prospect of any satisfactory termination to the labours of the Committee in the present session, it is desirable that the evidence, so far as it has been already taken, and the proceedings of the Committee, be reported to the House, accompanied by a recommendation that the Government should, early in the new Parliament, bring in a Bill on the subjects referred to the Committee." The question was put and agreed to.

On the 19th of June the following Report was adopted, as the Report of the Committee to the House:—

SPECIAL REPORT.

THE SELECT COMMITTEE to whom were referred the CHEMISTS and DRUGGISTS' BILL, and the CHEMISTS and DRUGGISTS' (No. 2) BILL;—HAVE considered the said Bills, and have agreed to the following SPECIAL REPORT:—

YOUR Committee have examined witnesses on the general questions raised by the provisions contained in the two Bills committed to them, and have heard evidence in support of the Chemists and Druggists' (No. 1) Bill.

Your Committee then passed the following Resolutions:

1st. That no compulsory examination or registration under the Bills referred to the Committee should be required of persons now carrying on the trade of chemists and druggists

2nd. That the Bill do provide that no other person shall, after a day to be fixed by the Bill, sell certain dangerous drugs, to be scheduled in the Bill, unless he shall be examined and registered.

By the adoption of the second Resolution as an amendment to a proposal that persons compounding medicines from the prescriptions of medical men should also be examined, your Committee decided against the principal provision contained in the Chemists and Druggists' (No. 1) Bill, and they accordingly resolved to proceed with the Chemists and Druggists' (No. 2) Bill.

After several Clauses of the Bill were passed, considerable difficulty arose in providing for the first formation of the Council to which the duty of regulating the examination of Chemists and Druggists was to be entrusted; and your Committee, considering the advanced period of the

Session, were compelled to abandon the expectation of any useful result from a further consideration of the Bill.

Having, therefore, disposed, *pro forma*, of the remaining clauses, they came to the following Resolution:

> "That inasmuch as there appears to be little prospect of any satisfactory termination to the labours of the Committee in the present Session, it is desirable that the Evidence, so far as it has been already taken, and the Proceedings of the Committee, be reported to the House, accompanied by a recommendation that the Government should, early in the new Parliament, bring in a Bill on the subjects referred to the Committee."

Your Committee have, in conclusion, to report that, in their opinion, it is not expedient to proceed further with either of the Bills which have been committed to them.

19th June, 1865.

The above Report, and a mass of recorded evidence in favour of a measure for elevating the chemists and druggists of Great Britain, are the only results of the labours of the Committee. They may, however, be turned to good account if the chemists and druggists themselves will work together in harmony and show their old friends in the new Parliament that they earnestly desire an Act that will save their honourable craft from the scandal occasioned by ignorant pretenders.

We hope and trust that before any further steps are taken in the path of legislation, that members and non-members of the Pharmaceutical Society may cease to pull in opposite directions. As long as the two sections of the trade are at loggerheads, it is useless to expect anything in the shape of a good and comprehensive scheme of legislation. If the Pharmaceutists keep aloof from the rest of the trade, their Society will gradually sink into insignificance. If the members of the United Society and the druggists of no society refuse to meet the Pharmaceutists in a proper spirit, it is not unlikely that they will fall into the clutches of the Doctors.

CHEMISTS AND THEIR CRITICS.

The chemist and druggist is as unfortunate as the old man of the classic fable, who came home from market with his son and an ass. Do what he will, he cannot escape public censure. He is now blamed for prescribing, and now for not prescribing. If he amends a dangerous prescription, the writer of it may tell him to mind his own business; and if he follows it exactly, he runs the risk of being branded as an ignoramus, unfit to be trusted with drugs.

As an illustration of the unfair treatment which the chemist too often receives in the newspapers, we extract from the *Pall Mall Gazette* a paragraph recording a recent case of death from an overdose of medicine:—

> "A sad mischance has occurred at Bath. A young married woman sent a friend to buy a drug called bitter apple, which is said to be a favourite medicine among the poor. It is, in fact, powdered colocynth. She was supplied with half an ounce, but no directions were furnished with it as to the dose (the chemist who sold it said, because none were asked for). The whole quantity supplied seems to have been taken, and the woman died. The surgeon at the inquest said the quantity supplied was twenty-four times the maximum dose ever administered by medical men. The chemist admitted he knew the quantity was more than enough to kill any one, yet he did not label it 'poison.'"

Now, the general public, on reading the above paragraph, doubtless concluded that the conduct of the chemist was most reprehensible. We have, however, seen a full report of the case, and find that the purchaser asked for a certain quantity of "bitter apple," which the chemist supplied. This is all he had to do with the unfortunate affair. It was not his duty to offer medical advice when he was simply asked to sell a certain article. We cannot think it was his duty to label the drug "poison." Medicinal articles that are only poisonous in large doses are not usually regarded as poisons.

At a coroner's inquest at Long Sutton, noticed in another part of this journal, a chemist was subjected to a sharp examination for having unfortunately sold six mercurial pills to a man who happened to die some days after taking them.

Tracing Paper.—Open a quire of double crown tissue paper, and brush the first sheet with a mixture of mastic varnish and oil of turpentine, equal parts; proceed with each sheet similarly, and dry them on lines by hanging them up singly. As the process goes on, the under sheets absorb a portion of the varnish, and require less than if single sheets were brushed separately. The prepared paper is quite light and transparent, it may readily be written on, and drawings traced with a pen are permanently visible.

THE CHEMIST AND DRUGGIST AT THE DUBLIN EXHIBITION.—I.

BY HARRY NAPIER DRAPER, PH.D., F.C.S.

I propose, in this and in succeeding articles, to give an account of that part of the Dublin Exhibition which is of interest to the readers of the Chemist and Druggist. To those among them who may not have the opportunity of visiting Dublin this year, I hope that my report may in some measure stand instead of personal inspection, for I shall endeavour to make it a practical guide to those who can spare time to cross the Irish Channel and see for themselves how our Hibernian neighbours manage an undertaking of such magnitude as an International Show. It may perhaps not be out of place to say here, that if Englishmen—and Londoners in particular—were to visit Ireland more and judge of Irishmen more by personal experience and less through trenchant newspaper criticism, the heaviest wrong under which that much-maligned country labours would soon cease to exist.

Before describing the contents of the Dublin Exhibition, or rather that part of them which is dependent for existence upon Chemistry and the allied sciences, I may perhaps be permitted to give a short sketch of the history of the Exhibition itself. I am the more inclined to do this, as, if I mistake not, the day which witnessed the inauguration of this undertaking marked one of the most important epochs in the annals of the country.

For a long time—prior even to the great International Fair of 1851—Industrial Exhibitions had ceased to be novelties in Dublin. The Royal Dublin Society had for many years held on its own premises Triennial Exhibitions of manufactures, which were not only tolerably successful as commercial speculations, but really—by promoting healthy competition—exercised a beneficial influence on the country, notwithstanding their necessarily local character. But when the time came round, in 1853, for the ordinary Triennial Exhibition, the Royal Dublin Society found itself in somewhat of a dilemma. The country had hardly had time to recover from the effects of the shock which it had received from the famine, and money and native energy were alike almost stagnant. To have deferred the Exhibition then due to a more auspicious year would, however prudent such a step might in other respects be, have been a certain method of losing that *prestige* which the Society had gained as a prime mover and supporter of Irish industrial affairs. The splendour of the World's Fair in Hyde-park had not yet become traditionary, but was a thing almost of the present; and to have remained content with one of the meagre displays which had hitherto only been effected would have been to provoke, if not to insure, failure. It was at this juncture that Mr. Dargan came forward with an offer of £20,000, to defray the expense of a suitable building. Thus much being gained, the project took larger proportions than had been anticipated, and Mr. Dargan's share in its completion was eventually represented by a sum little short of £90,000. Though the Irish Exhibition of 1853 was far from being commercially remunerative, it was, in other respects, a decided success—a result to which the presence of her Majesty the Queen on the opening day not a little contributed.

The existence of the present Exhibition is due to the energy of a few influential gentlemen, who believed that a permanent building laid out as a winter garden would be useful to and appreciated by the Dublin citizens. It was during the discussion of the plan for a permanent structure, after the model of the Sydenham Palace, that the idea of employing it for the purposes of an exhibition during the first months of its existence was mooted. Very soon the matter took a tangible shape—a company was formed, the ground purchased, a design selected, and the contracts approved. The building progressed rapidly, and was completed in certainly less time than any other work of equal magnitude has occupied in Dublin. The Exhibition was, as all our readers know, opened on the 9th of May last, the Prince of Wales taking the principal part in the ceremony. The chief point in which the Dublin Exhibition differs from its predecessors, both English and Irish, is, then, that it occupies a building which is not merely temporary, but which, while admirably adapted to its present purpose, is eventually to become—the show being over—a Winter Garden and Art Palace.

It would be quite out of place and unnecessary for me to enter here upon any description of the building itself. It will be enough to say that the general effect is good, and that the internal colouring, decoration, and arrangements so very closely resemble in character those of all previous structures erected for the same purpose, that they present nothing very novel to the observer who is not particularly interested in such matters. A great deal of this sameness of effect is due to the time-honoured scarlet banners with white letters, which are descriptive of the various courts and classes. It is quite time that a change were made in this particular. White letters on a *blue* ground would, for example, be quite as effective and distinct.

Pure Pharmacy is not very largely represented in the Dublin Exhibition. There are, indeed, not more than three—or, at most, four—cases in the whole of the British Department, which contain products used in medicine. Two very good reasons may be assigned for this. The first is, that although Dublin possesses several pharmaceutical establishments which are second in reputation to none even in London, the manufacture of fine chemicals, and particularly of those which would—like the scaled preparations of iron, and the alkaloids of bark and opium—be of attractive appearance, is not carried on there at all; that is to say, on anything like a commercial scale, for one firm does exhibit small specimens of some of the very iron-salts which we have just mentioned, and these are so different in appearance from what are usually met with in commerce, that we shall afterwards refer to them more particularly.

The second reason is, that the commission to whom the organization of the Exhibition has been entrusted, has, it is whispered,—nay, indeed, even clamorously proclaimed,—been somewhat disobliging and illiberal to exhibitors, and has so remorselessly curtailed even the most reasonable demands for space, that in not a few instances the intending exhibitor has decided that it would be better to send nothing at all. And this principle of refusing to grant any but the most ridiculously inadequate space has, in Sections I. and II.—those which come particularly under our notice—been carried to such an extent that, with two or three remarkable exceptions, there is not a case of really imposing appearance.

And now that the display is complete, it is quite plain that the cutting-down principle has been carried too far, and that a little judicious arrangement of the space at the disposal of the committee, and the exclusion of much trumpery—which, however pretty and attractive in the shop windows of Grafton and Sackville streets, no more illustrate the useful arts than they contribute to the general effect of the Exhibition—would have given sufficient room for those illustrations of progress which should distinguish an Industrial Exhibition from an arcade or bazaar.

If, however, Pharmacy, pure and simple, be imperfectly represented, there is nevertheless very much in Sections I. and II., and indeed in Section III., which cannot be held to be without interest to the intelligent chemist and druggist. We purpose in this article confining ourselves to the British Department, and leaving the foreign contributions, among which—glancing over the catalogue—we observe many things of considerable interest, for a future report. Although we may not, perhaps, be able to adhere strictly to the legitimate arrangement of the objects which come under our notice, we need not wilfully depart from it, and therefore begin with Section I., which illustrates—

METALLURGICAL OPERATIONS AND MINERAL PRODUCTS.

The products and manufactures constituting this section are distributed between the nave of the building and the eastern gallery. Not a few, however,—especially those of greater bulk—have been, much to the chagrin of the exhibitors, assigned a place in the "Agricultural Hall" of the Royal Dublin Society, which is half a mile distant from the Exhibition itself. Going systematically over the catalogue, this arrangement causes the visitor no little annoyance and disappointment. The mining industries of Ireland are fairly represented by the magnificent case of "The Mining Company of Ireland," and those of "The Connorree Mining Company," "The General Mining Company for Ireland," "The Carson Mine Company," and "The Carysfort Mining Company." The Mining Company of Ireland exhibits specimens of copper ores from Knockmahon (Waterford), and illustrates the various operations of washing and dressing which the ore undergoes before it is ready to find its market in Swansea, for copper smelting is as yet an undeveloped branch of industry in Ireland. *Lead* is, however, the grand staple of this Company. It possesses mines of the metal in different parts of Ireland, the most extensive being those of Luganure in the county Wicklow. The Company also works ore raised by other mining associations throughout the country. The mine and workings at Luganure, romantically situated on the banks of Glendalough, and in the immediate neighbourhood of the Seven Churches, are well worthy a visit. We give this as a hint to any of our readers who, visiting Dublin, may find themselves with a day to spare. By any one interested in mining operations, a place where more can be seen so pleasantly and in so little time could scarcely be selected.

The smelting, refining, and the manufacture of the lead itself into sheet, tubing, and shot, are carried on at the Company's works at Ballycorns. The ore, from which the metal is extracted, is the sulphide (Galena), and every operation, from the first smelting to the production of the sheet and shot, is conducted on the premises. As an intermediate and very important stage, that most interesting part of the lead manufacture—the *desilvering* process of Pattinson—is accomplished. This, as our readers are aware, is dependent upon the remarkable fact that an alloy of lead and silver is more fusible than pure lead itself. The impure lead—if a base metal alloyed with one which is noble can be said to be impure—is kept just at the point of fusion in large pans of cast iron; and as the purer lead forms large masses of aggregated crystals, these are removed in perforated ladles, which permit the fluid portion to drain away. When this fluid portion attains a certain degree of argentine richness, the operation is suspended, and the alloy is submitted to the usual process of cupellation. It is thus that the magnificent cake of silver exhibited by the Company has been produced. An important feature in connection with this part of its operations has recently been introduced. The Company finds it profitable to import fro South America, poor silver ores which would scarcely, i worked by themselves, repay the cost of smelting; and b operating upon this ore as part of a charge of galena, not onl is a large yield of silver obtained, but a residuary product i separated, consisting chiefly of nickel and cobalt, which find a ready market in England for the manufacture of Germa silver.

It is very remarkable that this nickel and cobalt allo separates itself from the lead apparently solely by differenc of specific gravity, for it is found as a superstratum on th melted metal, and is removed from it after cooling by simpl mechanical means.

We have been somewhat diffuse on this subject of the lea manufacture, because it is one which is pretty largely illustrated in the Exhibition. The case of the Mining Compan of Ireland includes, besides specimens of ores from differen localities, a complete illustrative series of specimens represent ing the different stages of the manufacture: lead in "pig," shot, sheet, pipe, and also red-lead—another important manu facture of the Company.

The manufacture of lead is also represented in the Exhibi tion by S. and W. Tudor, of London (35). In this case ar some excellent illustrations of Pattinson's process, and a ver beautiful example of the iridescent film which forms on th surface of the melting-pots. Messrs. Tudor exhibit als white-lead; and one is reminded by the lead gratings, whic are shown in juxtaposition with gratings superficially con verted into carbonate, how empirical and little understood i the production of this important pigment, and how much method for preparing it of equally good quality in the w way is to be desired. Messrs. Tudor show also red lea litharge, orange lead, and "genuine white paint."

The excellent series of products and manufacture from lea shown by Walker, Parker, and Co., of Chester (whos case has unaccountably been omitted from the catalogue), the only other of the same nature which we shall notic This well-known firm exhibits, in addition to the ordina objects which are common to the other cases which we hav noticed, lead tubing of all sizes, and of remarkable surfa brilliancy; shot in a complete series, from sparrow-hail to bullets of twelve to the pound; and an admirable model of a shot tower. Here, again, the process of white-lead making is illustrated, some of the gratings, after superficial conversion into carbonate, closely resembling bleached star-fish. "Glass-makers' red lead" is also shown. The colour of this is, of course, not so bright as that of the variety used as a pigment.

The Connorree Mining Company, Ovoca, county Wicklow (3), exhibits a collection of copper ores and iron pyrites (FeS_2), which, though not of any very great interest, may be noticed as typical of a very important branch of industry in the county; nearly the whole of the sulphuric acid—a product which, with Liebig, we consider a fair index of the commercial prosperity of a county—made in Ireland being obtained from Wicklow pyrites. The same Company also exhibits native copper, "copper precipitate," and ochre.

The Carson Mine Company (5), through its engineer, Mr. Lisabe, illustrates the mineralogy of the counties Cork and Clare by a series of specimens of copper, lead, and iron ores; also auriferous quartz, sulphate of baryta, and fluor-spa.

The General Mining Company of Ireland (6) has a good collection of specimens of calamine, arsenical pyrites, lead and copper ores. This collection includes also ochres, which, as is known, are often waste products, from the washing of many ores containing a good deal of oxide of iron.

Though it is possible we may have occasion, in order to notice one or two matters of interest, to return to the mineralogical department of the Exhibition, we propose now to notice what is certainly the most attractive object in the scientific section of the British Department—the case of Messrs. Johnson and Matthey, of Hatton Garden.

Messrs. Johnson and Matthey, we believe, possess, with one other firm, an almost complete monopoly of the platinum manufacture in Great Britain. Nothing can exceed the beauty of the objects which they exhibit, or the admirable taste with which they are displayed. The centre of the case is occupied by one of the platinum retorts or "boilers" used in the concentration of sulphuric acid. This, which is valued at £1,500, is capable of turning out three tons of acid *per diem*. It is made *entirely* of platinum, the joints being effected by the "autogenous" method of soldering, the old plan of using gold for this purpose being thus superseded. The use of retorts of platinum for the concentration of sulphuric acid is not by any means so general as it was some time since, at least in England, where glass bolt-heads worked on a continuous method are now rapidly supplying their place; but Messrs. Johnson and Matthey state that, notwithstanding this, the demand for the platinum stills is in no way diminished. This is apparently due to the fact that continental manufacturers still pronounce in favour of platinum as compared with glass.

Among the other objects formed of platinum which are the most striking features in this display, are—an alembic used in refining gold and silver; a syphon (price £120), used in conjunction with the sulphuric acid retort; a pyrometer—"a novel application of the spiral coil of a compound lamina of two metals of unequal expansion by heat;" platinum tubes, also "self-soldered;" and a tempting array of crucibles, basins, capsules, foil, wire, and gauze. We have not enumerated one-tenth of the objects in this case which illustrate platinum and its applications, to say nothing of the other rare metals, which are piled in tantalizing profusion on the shelves; but as we hope to return to the subject in a future report, and as the present one can be but little more than introductory, we leave it for the present, and glance, for the mere sake of variety, at a case in its immediate vicinity, which, however unpretending, illustrates an important discovery affecting a great national industry.

This, which is exhibited by the British Seaweed Company (13), contains a complete series of specimens explanatory of the improved process of Mr. E. C. Stanford. Some of our readers may remember that Mr. Stanford read a paper on the subject at the Chemical Society in 1862. In order to understand the nature of his improvements, it will be necessary to glance for a moment at the usual plan of proceeding adopted for obtaining from marine algæ their valuable inorganic constituents. Sixty years ago Scottish kelp—the rough product of the incineration of seaweed—was worth £20 per ton; but when the restrictive duty was removed from foreign barilla the price fell to £3, and the manufacture was almost discontinued. In 1812, however, Courtois discovered Iodine; and what with the increased use of iodine in medicine, and the large demand for it in photography, the kelp manufacture is at the present time a very important branch of industry. At the same time it is one which has been very much neglected, owing to the fact that it is chiefly carried on in localities which, like the Hebrides and the coast of Donegal, are remote from towns and civilization. The method of burning the weed varies slightly in different places, but in all the same general principle, or absence of principle, is observed. The weeds are collected, spread in the sun to dry, and then burned in shallow pits. As the organic matter is destroyed, the salts fuse and form a glass-like mass, which is broken up by throwing water upon it while still hot. It is a remarkable fact that deep-sea algæ, like the *Laminaria digitata* (the "bandarrig" of Scotch, and "sea-rods" of Irish kelpers), contains very much more iodine and potash salts than the two species of *Fucus* (*serratus* and *nodosus*) which grow along shore. It is indeed to the circumstance, that in Jersey the *Laminaria* alone is burnt, that the greater commercial value of the kelp of that island is due. British kelp is "lixiviated," or treated for its soluble salts, chiefly in Glasgow, where one manufacturer, Mr. Patterson, operates upon about 8,000 tons annually. The process is shortly as follows:—The solution obtained by heating the kelp with water is evaporated, until on cooling it deposits, first, crystals of sulphate of potash, and then those of chloride of sodium. These being separately collected, the solution is cooled in iron pans, and then deposits chloride of potassium. When this last process has been repeated with the mother liquor, the solution, now rich in iodides and bromides, is subjected to the usual process for the recovery of its iodine.

Mr. Stanford was struck with at least two grand imperfections in the present mode of obtaining the kelp. Firstly, from the high temperature employed to destroy the organic matter, much, not only of the iodine, but of the potash, is volatilized, the loss being at least equal to the whole product. Secondly, as the process cannot be carried out in winter, the winter weeds cast up on the coast by storms, and consisting principally of the valuable *Laminaria*, are entirely neglected. And this is the plan by which Mr. Stanford remedies both these evils. The weeds are collected and dried, pressed into cakes, and carbonized in cast-iron retorts at a low red heat, with just the same precautions as are adopted in the now famous process for obtaining paraffin oil from Boghead Cannel. In this way not only is all the iodine and all the potash which the sea-weed contains obtained, but a series of products, totally lost in the old process, passes into the receiving vessels. We should have said that the charred matter from the retort is lixiviated, and in every other respect treated like ordinary kelp. Nothing is wasted; the very charcoal which remains after the soluble matters have been removed, being used to heat the retorts.

The case of the British Sea-Weed Company illustrates this process by a complete series of specimens, running from the carbonized weed, or "*tangle char*," through "*lixiviated char*," "*ash*" (containing from 15 to 25 per cent. of phosphates, and valuable as manure), *acetate of lime*, *acetate of ammonia*, *naphtha*, *acetic acid*, *sulphur*, *iodine*, and *bromine*. It is to be regretted that the Company has not thought proper to place in or near the case any description of the interesting process which we have sketched for our readers, and without understanding this they are but so many bottles filled with uninviting solids and unpleasant smelling liquids.

It is also a matter of regret that there is no case illustrating the patent of Mr. Macardle, which, although resembling Stanford's in many respects, introduced the important modification of first reducing the bulk of the weed by allowing it to rot in heaps. A company was got up some time ago to carry out the patent, but somehow—in spite of a tempting prospectus and analyses which promised a yield of iodine before unheard of—the company has apparently gone the way which speculations of this kind almost invariably manage to go in Ireland, and died a natural death. We are at least glad to see that Mr. Stanford's patent has become the basis of a practical operation on an extensive scale, and we wish him all the success he deserves.

DOCTORS' SHOPS *v.* CHEMISTS' SHOPS.

(*From the Medical Circular.*)

ALTHOUGH we by no means advocate the sale of medicines on the part of the medical profession, yet it cannot be denied that pharmacy forms an integral part of a medical man's education, and that many of our profession are legally entitled to practise it by several of the medical corporations, as, for instance, by the Society of Apothecaries of London, by the College of Surgeons of Edinburgh, by the Faculty of Physicians and Surgeons of Glasgow, and by the Apothecaries' Hall of Dublin. It may be very well, also, for some medical writers who are little acquainted with the actual condition of the profession, and with the wants of the public, to argue that our brethren should all be physicians and "pure" surgeons; that they should all live in private houses, accessible by a knocker and a bell; that they should all write prescriptions and charge fees, and leave the dispensing of medicines to the chemists and druggists. When they are able to do this, either by virtue of their private means or their professional connections, it is well and good; but we are only appealing to common sense and common experience when we assert that, in very many districts of our country, and in many quarters of our metropolis, not only is a professional man wholly unable to maintain such a position, but the surrounding public are utterly unable to remunerate him, and to pay the druggist in addition. Our views may appear paradoxical to some of our contemporaries: but we honestly confess that when we pass some of our crowded thoroughfares in the poorer districts of the metropolis, and see some open surgery kept, it may be, by an educated and qualified member of our profession, we regard such a person as a blessing to the neighbourhood; while, on the contrary, we look upon his rival, the chemist and druggist, in the same locality, as a delusion and a sham. The one has passed a laborious period of study in making himself acquainted with the theory and practice of his art, and for a very moderate remuneration he helps his poor neighbours in their sickness: the other, the druggist, has had no education or study at all, but has bought or rented a shop, the red and blue bottles in which are, to the ignorant, the sufficient evidence of his skill. The one has a right to practise pharmacy as well as medicine and surgery; the other practises all three without any defined right whatever: and if this freedom to practise were exercised for the benefit of the community, we should have no cause to complain; but the very reverse we believe to be the truth. Counter-practice on the part of the chemists and druggists is quite unnecessary, if not illegal; the practice of pharmacy on the part of many members of our profession is perfectly legal, and often absolutely necessary. It is quite time that the public should know the truth in this matter.

EXTRACTS FROM THE MINUTES OF EVIDENCE

TAKEN BEFORE THE SELECT COMMITTEE ON CHEMISTS AND DRUGGISTS' BILLS.

DR. A. TAYLOR'S SUGGESTIONS.

1. THAT none but qualified persons educated to the trade of druggists should be allowed to vend, by retail, drugs or medicines capable of acting as poisons.

2. That the sale of poisonous drugs by chandlers, grocers, oilmen, drapers, or small shopkeepers, should be strictly prohibited.

3. That the sale of arsenic, strychnia, and other specified poisons should, after a certain date, be restricted to pharmaceutical chemists and licentiates of the Apothecaries' Society. [By pharmaceutical chemists I do not mean any particular class, but those persons who are properly educated and men of experience; those who have undergone an examination; those who have been regularly instructed in the nature of drugs and their properties.] Any other persons acting as druggists not to be permitted to sell them until they have proved their knowledge of poisonous drugs by undergoing a proper examination. [This, I think, is a *sine quâ non* with regard to the safety of the public, the certainty as to medical prescriptions, and the proper status of the druggist's profession.]

4. Under no circumstances should boys or girls, or persons who cannot read or write, be permitted to sell poisonous drugs.

5. Some rules are required for the management of a licensed retail trade in poisonous drugs. No youth should be allowed to sell them who is not above the age of eighteen years, and who has not been at least one year engaged in the practice of pharmacy under a pharmaceutical chemist or licentiate of the Apothecaries' Society. This restriction not to be applied to one who has passed an examination either at the Pharmaceutical Society or at Apothecaries' Hall, as to his knowledge of poisonous drugs, or at any rate passed an examination somewhere, to show his knowledge of them. I do not wish to limit it to the Apothecaries' Company or to the Pharmaceutical Society; any properly constituted body would meet my views.

6. That poisonous drugs and medicines having a similar colour and appearance should not be kept near to each other in similar bottles, drawers, or boxes, with similar labels.

7. That less facility should be given for the purchase of arsenic, strychnia, and other deadly poisons which can be used for the purpose of suicide or murder.

8. That no poisonous drugs should be sold to girls or boys, under the age of twenty years, on any pretence whatever; and that in all cases of purchase or sale there should be a witness of adult age.

9. All poisonous drugs sold should be distinctly labelled with the name of the drug, the address of the vendor, and the date of sale.

10. That noxious substances, such as arsenic, corrosive sublimate, sugar of lead, and tartar emetic, and others of the like nature, when stored in large quantities, in casks or packages, should be distinctly labelled, and kept apart from other substances of an innocent kind which they resemble.

HIS LIST OF POISONS.

In France there are 19 articles prohibited; that is, putting the vegetable alkalies as one article. These substances were prohibited by the law of 1850, which the present Emperor has modified; before that, there were many more comprised in the list, which have since been struck out. Those which I have in my list have been taken from a great number of cases which have come before me,—arsenic, corrosive sublimate, the poisonous alkaloids. I have not mentioned the separate names of these: a man who deals in drugs ought to know them exactly, and be able to distinguish them. Prussic acid, essential oil of bitter almonds, chloroform, oxalic acid, salt of sorrel (a compound of oxalic acid), and nux vomica; tincture of aconite; tincture of colchicum; cantharides, or Spanish flies; and cocculus indicus. Then there are three substances which raise a difficulty: two of them are poisons, and one a most frightful poison. The difficulty is with regard to placing any restriction upon its sale, because it is very largely used for innocent purposes, and can hardly be dispensed with. I am afraid restrictions upon it would give rise to a good deal of inconvenience. I allude to cyanide of potassium; I may call it solid prussic acid—that will be the better name to give it. Two or three grains of it would be sufficient to kill a person speedily: it is one of the most fatal poisons we have. I may call it prussic acid in a solid state. As cyanide of potassium is largely employed in electro-plating and in electro-gilding, as well as in photography, and also employed by chemists for various purposes, it presents a difficulty. I need hardly say that it is desirable to have it sold only by educated men; and I think the Committee would see no difficulty in excluding the sale of it from such ignorant persons as we have described, in low villages and shops of this description. The keeping of it there might give rise to accidents; and I am of opinion it is at present difficult to obtain this substance from small shops. It is kept by the higher class of druggists, who know its use, and therefore I put this substance before the Committee, as its extensive use presents one of the most difficult cases for legislation; but it is a deadly poison, and destroys life rapidly. Another substance, opium, is one that has given rise to difference of opinion. You will observe, probably, that I have not mentioned opium or laudanum in the list. I purposely omitted it, because I have had occasion to consider the views on both sides regarding it; the necessity of supplying laudanum in small shops. I still think it would be for the safety of the public generally if this substance should not be allowed to be sold except by persons who have undergone an examination. It should not be allowed to be sold in small villages by general dealers and persons of that description. I may say, that a friend of mine very nearly lost his life. He sent to one of these village shops near Windsor for an ounce of tincture of rhubarb. It was laudanum that was sent to him. Any person educated in pharmacy would have known the distinction immediately by the smell, but the ignorant woman sent an ounce of laudanum. He had a narrow escape of his life, and has not been to a village shop since. I now come to another article; and that is a substance only recently discovered or comparatively recently discovered, and which is now largely used with reference to the aniline dyes—nitro-benzol. It is a very powerful poison in some respects. It has some of the character or smell of the oil of bitter almonds. I had a case of poisoning with it lately referred to me. It was sold for the purpose of giving a flavour to confectionery, and it acted so quickly on the person who took a small quantity that he died a short time after. The difficulty about this poison is this: a person may take it and appear to be well for some hours, as if nothing was the matter with him. There was a coachman who went into the kitchen where the cook used this in place of oil of bitter almonds for flavouring pastry, and after tasting it, he did not appear to suffer any ill effects. The man jumped on the coachbox and took his master for a drive; it was only on returning home, some time after he had tasted this liquid, that he felt very ill, and he soon died. This liquid would not probably get into common use, because it could not be given to a person without his knowledge, as it has a peculiar smell. It is a dangerous substance to be allowed to be kept by uneducated persons. I cannot see my way exactly between fettering commercial liberty in obtaining a thing like this in quantities for manufacturing and at the same time protecting life. I do not wish to fetter commerce. It has been a result of my practice to see a large number of deaths from poison, and I am more impressed with the necessity of seeing something done to prevent these deaths from occurring.

HOMŒOPATHIC MEDICINES.

Dr. Taylor, in reply to questions relating to the practice of the homœopaths, said:—They say aconite is in the globules, but I have never found any trace of it: I have been told our chemistry is not refined enough to trace it; we go to the hundred-thousandth, they put in the millionth. The globules consist of sugar and starch. I believe the homœopaths use tincture of aconite. In one instance I detected a strong dose of morphia in medicine prescribed by a homœopathic practitioner. Six powders were made up,—three contained sugar of milk, and three contained morphia and calomel; in examining the homœopathic powders, I found in some of them upwards of a grain of morphia. They do not always, as they profess, use homœopathic doses. The powders were numbered to be taken on certain nights, and in every other powder there was sugar of milk, and in every other powder morphia and calomel.

THE EFFECT OF LEGISLATION.

Dr. Taylor: As you are aware, there are some Apothecaries, now living, who have only their licence to practise by having practised before the 1st of April, 1815; I have seen one of them in twenty years; but the greater number have died off, and there is now a better class of men altogether, and that, I think, will be the effect of legislation with respect to druggists. Just before the Apothecaries' Society was founded, there were similar confusion and difficulty as to who was an apothecary and who was not. The time will come round when the present low class of druggists will be absorbed into the general body; and I believe the profession and the trade itself will be benefited by the result.

MISTAKES THROUGH IGNORANCE OR CARELESSNESS.

The examination of Dr. Quain by Mr. Ayrton is thus reported:—

Mr. Ayrton: Are you aware of any accident having occurred from want of knowledge on the part of the seller of a poisonous substance, that the substance was poison?—the compounder or seller.—I have known cases of persons being killed by poison accidentally, and it would be difficult to say whether it arose from carelessness or ignorance on the part of the dispensers.

I want particularly to know if you ever heard of a case or knew of a case of life being endangered from want of knowledge on the part of the seller of a poisonous substance, that the substance was poisonous?—Certainly.

Can you remember any case?—The latest case that occurred to me is this: I ordered a preparation of iron (*Ferrum redactum*) for a patient, and ordered a drachm in 15 papers. I went on the following day, and found the patient excessively ill, and on inquiry I found she had a packet of papers called rust of iron, each of which contained half a drachm. I ascertained that the chemist had never heard of *Ferrum redactum*, and never knew of so small a dose as two grains of rust of iron being given, and he thought I must have mistaken it, and he gave half a drachm for each dose.

And that is a poisonous preparation?—Not a poison, but a large dose, and in this instance injurious.

My question is confined entirely to what are called poisonous substances; whether you ever knew a case applicable to poisonous substances?—I remember an instance of a person mixing a drachm of extract of henbane instead of tincture of henbane, which might have led to serious consequences.

Is that a poisonous substance?—Yes.

Where did that happen?—In Ireland.

Is that a case of frequent occurrence?—It is impossible to say; a patient tells you his medicine has not had the same effect; that he got it made up here and there, and that it was not the same; and you cannot say whether this arises from ignorance or carelessness.

I am particularly wishing to draw your attention to the distinction between the compounding of feeble or bad drugs, which do not respond to the expectation of the physician, and the selling poisonous substances, not knowing that the substances were poisonous: whether you recollect any case except the one you have mentioned?—That is very limited; suppose a person had taken a wrong remedy, and the effects were serious though not fatal.

I am only asking your experience?—The difficulty of answering that question is this: if a patient is killed, as I have known persons killed, by taking wrong remedies, you ask the compounder how this has occurred. The compounder says, "Oh! dear me, I made a mistake;" you do not know whether he really did not know what the proper doses were, or whether he was careless. For example: it was usual, in a hospital, to keep in the ward what is called anodyne draught. The nurse went for a supply of this, and the dispenser gave a strong solution: there being a grain in each drachm, she gave that as an anodyne, and instead of one-eighth she gave eight grains; that arose from the man not knowing what were the proper doses.

That was the case of having a compound already prepared?—If he was a better educated man, or knew what the dose was, he would not have dared to have dispensed such a thing without giving cautions with it.

Are not these what may be called mere mistakes, taking down a wrong bottle; not resulting from want of knowledge of the fact whether the thing sold is a poisonous drug or not?—It is difficult to answer the question whether it arises from carelessness or ignorance.

Are there not some cases, not inconsiderable, in which medical men write prescriptions in a way which leads to mistakes, such as morphine instead of opium?—There are very many cases, I confess, as a physician, where well-educated pharmaceutical chemists may have opportunities for correcting the mistakes made by physicians writing, for example, in a hurry, or when disturbed by being spoken to whilst writing.

Physicians and surgeons are apt to make mistakes, are they not, in the modes in which they write prescriptions?—They are liable to do so.

And if not corrected they lead to calamities?—Decidedly.

THE LANGUAGE OF PRESCRIPTIONS.

Mr. Roebuck: You used the words chemist and druggist; will you tell me what a chemist is?—Dr. Quain: You ought to ask a chemist what a chemist is. There are two classes of chemists, purely scientific chemists, such as the professors at the Royal Institutions and the teachers at schools, and the pharmaceutical chemists, who mix drugs.

And a druggist is a person who sells drugs?—Yes.

I think you laid it down as a rule, that one of the dangers arises from persons not knowing the meaning of prescriptions, and therefore one of the conclusions to which you come was, that no person not examined should compound medicines?—Yes; who had not shown knowledge or capability.

I want to know what a prescription is?—A prescription is an order for the preparation or compounding of drugs.

Will you take that in your hand; is that a prescription (*handing a paper to the Witness*)?—Certainly.

Is that a prescription (*handing another paper to the Witness*)?—That is very incomplete.

One I wrote, the other was written by a doctor: mischief arises from accident; careless accident, ignorance, carelessness, and criminal intent; that exhausts all cases of danger?—Yes.

In order to prevent accident and ignorance, would it not be a good precaution that the thing should be written in English?—The patient would not take it in nine cases out of ten if he knew what it was.

Do you know in France all prescriptions are written in French?—It is often illegible French; and, moreover, the thing prescribed does but little good or harm.

Is that your opinion of French physicians?—From experience, I can say, that the French generally prescribe what does very little good, and certainly does very little harm.

And you think a great advantage is derived from keeping the patient in ignorance of what he takes?—Immense advantage.

That is your reason for not taking the precaution of preventing accident that arises from the ignorance of chemists of writing in English?—Yes; and, further, the facility of getting dispensed abroad prescriptions written in Latin.

DR. QUAIN ON MEDICAL PRACTICE BY CHEMISTS.

Mr. Roebuck: If I go into any chemist's shop and say to him, I have got a headache, will you give me a dose for it?—will you allow him to give me a dose?—Certainly.

Supposing I went on a Monday?—If you went every day for the same disease, I think the chemist should be prevented from treating you.

Supposing I went on Tuesday with the same headache, would you allow me then?—If you did, I would not interfere.

And if I went on Wednesday, would you then prohibit me?—Yes; I should say the chemist was systematically acting as a practitioner.

Three days act "systematically?"—We shall say so.

Two do not?—That would be a medium.

Do you think legislation could act on that sort of language?—Judges, or those before whom these cases come, would say what "practising" meant; judges interpret the law.

They make the law very often!—My suggestion was this, that chemists and druggists should not be allowed to be engaged in the treatment of diseases systematically; it is for a judge or magistrate to say what systematically is.

I want to know what is the meaning of the word "systematically;" I am talking as a legislator, you are talking as a physician; I want to know the meaning of the word systematically?—The public going day after day to be prescribed for, or the chemist going out to visit and prescribe for them.

The chemist going out and seeing them is so obvious a thing, you can put your finger on it; how can you prevent a person coming day by day or once a week to get advice for medicine from a chemist?—Probably you could not prevent it. I should put it with regard to any prosecution that it should be conducted by the Central Council, and unless they got satisfactory evidence, they would not sanction such a prosecution.

Supposing in a village there was a Lady Bountiful, and she went round to her cottagers generally once a day, and to the little ones that had got a cold she administered a certain dose, and to the women also who had colds a certain dose, and to the husband who hurt his foot just enough to do something for them, would you punish her?—She is not a chemist and druggist.

I am talking of a person without knowledge?—No law could punish that except it caused fatal or ill effects.

She takes in her pocket a dose of rhubarb, nobody thinks of interfering with that; what is the difference between the chemist and the lady who gives a dose?—I am adopting th words of the report.

I am not asking you what you adopt, but why?—Because the chemist and druggist keeps a "doctor's shop," which i a temptation to people to go to him, because they believe h has a sufficient knowledge to treat their diseases, and he i more in their way than Lady Bountiful. He is in a positio to a certain extent not only to impose himself upon the public but to let the public impose upon themselves. There ar thousands of instances where injury has been done to th public through the chemist going on from day to day treatin serious diseases, till such diseases become much worse an more established.

One objection to the chemist is, he is likely to do grea service to the patient?—Great harm.

The patient thinks he is likely to do great service?—Tha is in ignorance.

Is it not in your knowledge that people go to a druggis labouring under a disease, and, by continuing under th attendance of this man, that the disease makes such a progress that it is difficult to distinguish it?—Yes.

Have you ever known such things happen under the regula profession?—It is so sometimes.

NOTES AND QUERIES.

PETROLEUM CISTERNS.

A Subscriber (Manchester) writes:—"Can you, or any o your readers, inform me, through your pages, what kind o cistern is best adapted for storing Petroleum Burning Oil?—I had two made last summer of strong tin, one to contain 20 gallons and a smaller one, for the counter, of 12 gallons They are now both leaky, being perforated in different part of the bottom, the sides being apparently uninjured, as als those parts of the bottom where the solder has run. Anothe chemist in the neighbourhood has a cistern (tin) in the sam condition. I shall be greatly obliged for any suggestion fo a remedy."—We submit this query to readers who have ha experience in keeping petroleum.

COLD CREAM.

"*Enquirer.*"—The following is a good form:—Almond oil 1 lb.; white wax and spermaceti, of each 2 oz.: melt togeth in an earthen vessel, and when nearly cold, add graduall with constant stirring, 10 fl. oz. of rose-water. A few drop of otto of roses may be afterwards added.

ITCHING CAUSED BY COWHAGE.

E. A. writes: "Allow me, through the medium of you valuable journal, to mention the extraordinary efficacy paraffin oil in allaying the terrible itching sensation cause by mucuna. The relief it affords is almost instantaneou Perhaps this suggestion might be useful to some unfortunat beginner who, investigating the properties and uses of th various specimens of the contents of the Materia Medic translates the old adage, 'Fiat experimentum in corpore vili in a manner peculiar to himself, shortly to awaken to a sens of its truth."

The Publisher of the CHEMIST AND DRUGGIST will fe obliged to any subscriber who can favour him with th addresses of Mr. J. Poate, chemist, late of Portsmout and Mr. Douglas. Clydset, Abergavenny.

HOW TO BECOME A PHYSICIAN.—The following advertis ment appeared in the *Jersey Times* of June 21th under th attractive head of "Important to Parents:"—"If you wis your son to become a Physician, you can introduce him int a family where he will be surrounded with the comfort of home, and receive a first-rate Classical, Mathematical, an accomplished Education; he will be well drilled in Celsu Conspectus, Hippocrates, and the writing of Latin Medic Prescriptions, and prepared to pass his examinations in Alle pathy (*sic*), Homœopathy, Hydropathy, and the use of th Electro-Chemical Bath; and lastly he will be taught Natur and Experimental Philosophy, Practical Chemistry, &c by DR. GREGG, 3, Marine-terrace, St. Clement's-road, Jerse P.S.—The pupil must not be over ten years of age. Inclusive terms for board and education, 120 guineas per annum.'

Reviews

A Handbook of British Plants: Designed especially for Schools, Science Classes, and Excursionists. By W Lowndes Notcutt, Author of "Handbook of the Microscope," "The Geography of Plants," etc. (London: Longman, Green, and Co.; Cheltenham: Norman and Sons.) Price 3s. 6d.

So seldom is it that we are favoured with treatises on scientific subjects from the pens of retired druggists, that we heartily wish we were able to bestow unqualified praise upon the present little work. It commences with a short Introduction, in which the principal organs of plants are very briefly noticed. A sketch of the Classification of plants follows, and this is succeeded by brief directions for examining plants and for drying them to form an Herbarium. An analysis of the Natural Orders, occupying about twelve pages, is given to facilitate the discovery of the order to which any unknown plant belongs; and this leads to the sections in which the different Genera and Species are described. This part of the work, so far as we have examined it, appears to have been carefully compiled. A Glossary, with a few illustrations of leaves, forms of corolla, inflorescence, etc., completes the volume.

The author states in the Preface that "It is in nowise intended to compete with the larger 'Floras' of Babington, Hooker, and Bentham, but rather as a first book to beginners, and as an introduction to these works." The chief recommendations of Mr. Notcutt's "Handbook" are, we think, its cheapness and portability. It may prove useful to such as are contented with a superficial knowledge of our British plants; but we cannot look upon it as well adapted for the use of those who are really desirous of studying the science of Botany.

The Declaration of Students of the Natural and Physical Sciences. London: Simpkin, Marshall, and Co. Price 2d.

This pamphlet contains the names of 716 persons who wish to be known as the opponents of all who venture to read the Holy Scriptures by the light of science. The declaration to which the signatures are appended runs thus:—

"We, the undersigned students of the natural sciences, desire to express our sincere regret, that researches into scientific truth are perverted by some in our own times into occasion for casting doubt upon the truth and authenticity of the Holy Scriptures. We conceive that it is impossible for the Word of God, as written in the book of nature, and God's Word written in Holy Scripture, to contradict one another, however much they may appear to differ. We are not forgetful that physical science is not complete, but is only in a condition of progress, and that at present our finite reason enables us only to see as through a glass darkly; and we confidently believe, that a time will come when the two records will be seen to agree in every particular. We cannot but deplore that natural science should be looked upon with suspicion by many who do not make a study of it, merely on account of the unadvised manner in which some are placing it in opposition to Holy Writ. We believe that it is the duty of every scientific student to investigate nature simply for the purpose of elucidating truth, and that if he finds that some of his results appear to be in contradiction to the Written Word, or rather to his own *interpretations* of it, which may be erroneous, he should not presumptuously affirm that his own conclusions must be right, and the statements of Scripture wrong; rather, leave the two side by side till it shall please God to allow us to see the manner in which they may be reconciled; and, instead of insisting upon the seeming differences between science and the Scriptures, it would be as well to rest in faith upon the points in which they agree."

The promoters of this declaration were doubtless actuated by the purest motives when they endeavoured to get it signed by the Fellows of the scientific societies, but the result of their canvass proves that the great thinkers of our day are unwilling to subscribe to a creed founded on the idea that the tendency of modern science is to weaken our faith in Revelation.

There are a few well-known names appended to the declaration, but we miss those of the great leaders of the scientific world. As the *Athenæum* has pointed out, 166 F.R.S. who have written in the *Philosophical Transactions* were living when the quest for signatures was in progress, but of these 166 writers the declaration commands only the signatures of 19. The remaining 147 have refused to sign, not because they are infidels or sceptics, but because, with Hood, they

> "Consider faith and prayers
> Among the privatest of man's affairs."

A Dictionary of Chemistry, etc. By Henry Watts, B.A., F.C.S. Part XXVIII. Oleates——Osmiridium. (Longmans.)

This Part contains an excellent article on "Opium;" also a long account of "Organo-Metallic Bodies," from the pen of Dr. Frankland. We are glad to find that our suggestion for extending the Dictionary to five volumes has been adopted, and that there is now no danger of the latter portion of the work being spoiled by abridgment.

Correspondence

TRADE LEGISLATION AND THE TWO SOCIETIES.

TO THE EDITOR OF THE CHEMIST AND DRUGGIST.

Dear Sir,—The reports printed in your columns have revealed to the trade generally the fate of the two Bills which have lately given rise to so much discussion, anxiety, and anticipation. The members of the United Society have yet to wait for the realization of their highest hopes, but they have not worked in vain. They have incontestably proved their claim to the consideration of the Legislature, and have gained the advocacy of some of our leading statesmen. They may congratulate themselves upon having annihilated an unfair measure which might have been easily forced on the trade had there been no such organization as the United Society in existence.

I for one am truly sorry that some amicable arrangement was not concluded between the two Societies, as much expense might have been spared, much litigation prevented, and most desirable friendly relations secured. I hope and trust, however, that the recent turn of events will prevent any party strife in future. Let each Society learn wisdom from the experience of the past few months, and ere another Parliament is assembled in the Palace at Westminster let the leaders of both forget the hostilities of the past, and meet in friendly unison, and with calm and candid feelings endeavour by mutual concessions to frame a Bill between them that may set at rest this long-ventilated question of trade legislation. Let the pharmaceutists meet us as friends (not as enemies), and admit us to fellowship for some pecuniary consideration, and thus commence a new and prosperous era for their Society. By making a few concessions they might increase their numbers, enhance their funds, add to their influence, and tend to the advancement and extension of scientific and chemical research. On the other hand, let the members of the United Society not be too exacting, but allow their pharmaceutical brethren to retain any distinction they may have fairly earned. The two Societies thus united might then watch over and further the scientific and commercial interests of the whole trade, and resist interference from any outside class.

If, as it appears to me, a new Bill is to be framed upon the resolutions of the Select Committee, I fear it will leave us in exactly the same unsatisfactory position we now are. The sore which has been festering these many years will still be open, for I apprehend there will be no balm in Westminster to produce any healing effects. Let us, therefore, cease to cavil over the prize; for while we are arguing who is to have the arger portion, we may see others, unacquainted with the requirements of the trade, step in and take the whole. If we cannot agree among ourselves, we deserve to bear our burden in silence and shame. I hope, then, that the abortive conferences of the past may be buried into oblivion, and that the Societies may meet yet again, and endeavour to settle amicably this knotty question. "Via ad bonos mores sera nunquam est."

If a conference of plenipotentiaries can avert and end the terrible conflicts between nation and nation where the differences are momentous and intricate, surely a similar tribunal of arbitrators can arrange a matter comparatively so small, and that between men of thought, of business, and scientific superiority.

I think our best thanks are due to the Executive Committee of the United Society, also to Sir John Shelley and Sir Fitzroy Kelly, for the pains they have bestowed in our behalf. I much regret the resignation of the former most useful, affable, and respected honourable M.P. Trusting you will add your powerful influence to secure a reconciliation between the two Societies,

I am, dear Sir, your obediently,

Rye, Sussex, June 23, 1865. A. W. Smith.

TO THE EDITOR OF THE CHEMIST AND DRUGGIST.

Sir,—In the report of the 24th Anniversary of the Pharmaceutical Society, it is mentioned that an interview has taken place between a deputation from the United Society and the Council of the Pharmaceutical, for the combination of the two Bills.

It was proposed as a *sine qua non* that all chemists in business should be admitted, on the passing of the Act, to the register of the pharmaceutical chemists. Thus far it is fair enough, but what is to become of the assistants? Personally I am not affected by it, but think it unfair to them, after the hopes held out, and the precedence of 1841, when chemists were admitted members, and assistants associates of the Society.

The Pharmaceutical Society, on obtaining their present Bill in 1853, pretended to be very liberal, yet deviated from their acceptance on the former occasion, by admitting the chemist in business as a member, but compelling the assistant to pass an examination.

They, however, tried to smooth the matter over by making two or three grades in the examination; but this was only adding insult to injury. This is a question of vital importance to the assistant, and one in which he has a right to have a voice.

Yours truly, Fair Play.

METALLIC CAPSULES.—CAUTION.

TO THE EDITOR OF THE CHEMIST AND DRUGGIST.

Sir,—Will you permit me to call the attention of the trade, through your journal, to the danger of selling preparations in capsuled bottles, supplied by perfumers and others, when the capsules have not been manufactured by the patentee?

I have for years past sold certain articles, capsuled as described, without any knowledge of the patent capsules being infringed. I am now served with a Chancery process, by which I am compelled to enter a troublesome lawsuit. And as it may be the fate of other vendors of these articles to be subjected to similar proceedings, I desire to caution them against selling any capsuled article not bearing the name of Betts on the capsule.

I am, Sir, your obedient Servant,

July 13, 1865. Thos. D'Aubney.

The Pritchard Murder.—Dr. Paterson, the medical man whose conduct in regard to the Pritchard case has been the subject of severe strictures, has addressed a long letter to the *Glasgow Herald* in his own defence. Determined, if possible, to save Mrs. Pritchard's life, he refused, he says, to certify the cause of Mrs. Taylor's death, and addressed the following letter to the registrar, upon which he contends that official ought to have at once acted:—"6, Windsor-place, March 4, 1865.—Dear Sir,—I am surprised that I am called on to certify the cause of death in this case. I only saw the person for a few minutes a very short period before her death. She seemed to be under some narcotic, but Dr. Pritchard, who was present from the first moment of the illness until death occurred, and which happened in his own house, may certify the cause. The death was certainly sudden, unexpected, and to me mysterious.—I am, dear Sir, yours faithfully, James Paterson, M.D. To Mr. James Struthers, registrar."—To have denounced Dr. Pritchard at that stage would, Dr. Paterson says, have been ruin to him, for Pritchard could have brought forward three medical men, all Edinburgh graduates, not one of whom suspected that Mrs. Pritchard was being poisoned by antimony. Even if he had not written the above letter, the registrar ought to have known that no medical man would have refused to sign the death certificate of any member of a medical brother's family whom he had seen on the deathbed, unless he suspected foul play. He fully expected the registrar would act on his letter, and had he done so Mrs. Pritchard's life would have been saved. His first visit to Mrs. Pritchard was on the day of her mother's funeral; the next day he consulted in confidence with one or two of his professional friends, and they all came to the conclusion that Mrs. Taylor had been poisoned by opium, and that Mrs. Pritchard was being dosed with antimony. He would mention, he says, the names of these gentlemen "were it not that the public might fix upon them as the source from which proceeded the anonymous letter sent to the authorities, and which led to the apprehension of Pritchard." They all thought that the refusal of the certificate and the sending of the letter would lead to judicial investigation, and when Pritchard called subsequently at his house at an unseasonable hour, he (Dr. Paterson) quite believed that Pritchard had been scared from his purpose, and that Mrs. Pritchard would be safe.

Non-Explosive Gunpowder.—On Saturday last experiments were performed on Wimbledon-common with the object of showing that powder, without any permanent injury to its destructive qualities, can, at will, be rendered non-explosive. A Mr. Gale, of Plymouth, although labouring under the privation of loss of sight, has in the course of eleven years' patient study devised the means of preventing the explosion of gunpowder; which same gunpowder, the instant that his preparation has been withdrawn, may be set fire to and exploded. His secret consists in the admixture of a sandy substance, which, by separating the grains of powder, prevents them from igniting simultaneously. The grains in immediate contact with the match or red-hot iron thrust into the mass are of course consumed, and go off in smoke; but there the matter ends. Fire is not communicated to the other grains, and there is no explosion whatever. When tested by weighing on Saturday, after the uninflammable materials had been sifted away, it was found that the gunpowder had lost about a sixth of its volume during the experiments. The remaining five-sixths exploded instantly that they were brought into contact with agencies similar to those which before had proved ineffectual. Mr. Ga expressed his willingness to sit upon a barrel of gunpowd on the common, and allow a red-hot poker to be plunged in it, provided he were first allowed to add his preparati to the contents of the barrel.

Utilization of Sewage.—The prospectus has been issu of the Metropolis Sewage and Essex Reclamation Compan incorporated by Special Act of Parliament, to utilize t sewage of the northern side of London, under the concessi granted to Messrs. Napier and Hope by the Metropolit Board of Works. The share capital is to be £2,100,00 in scrip certificates of £100, to be hereafter divided int shares of £10; and the total cost of the undertaking, allowi 5 per cent. during construction, is estimated at £2,400,000, which £300,000 will be raised by debentures. The profi from so much of the sewage as can be utilized for the fir four years from this date are to belong wholly to the compan and for the remaining fifty years of the concession they a to be equally divided between the company and the Metr politan Board of Works, with a priority of payment t the shareholders to the extent of 5 per cent. Their amoun which has been estimated by Baron Liebig at £2,666,666 p annum, is assumed by the company from actual data, in cluding the long experience attained at Edinburgh, to b at the least £720,000 or £650,000, deducting all workin expenses, a result which would give more than 15 per cen to the shareholders, and be capable of constant extensio It is further pointed out that the referees, to whom the Bi was sent by the House of Commons on the petition of th Corporation of London, have pronounced that the estimat for the construction of the works is sufficient, while th Committee of the House, after a long and patient inquir reported the scheme to be the most useful and profitable tha could be devised for the purpose. In addition to their sewag right, the company are to have the privilege of reclaimin about 7,000 acres of sandy foreshore on the Essex coas between Shoeburyness and the mouth of the Blackwate The contractor for the works is Mr. William Webster, wh has constructed more than a third of the main drainag works of the metropolis, including the Crossness outfall; an the undertaking, which, from its bearing on the agricultura prosperity of the entire country and the health of all th inhabitants of London, must be regarded as one of the mos interesting and important of modern times, is introduced b the International Financial Society. The subscriptions are it is said, expected to proceed mostly from land-owners an farmers who from recent practical experiments are best abl to appreciate its prospects; and it is reported that Messrs Antony Gibbs and Sons, who for years held the guan contracts for this country, have agreed with the Internationa Society to take, if requisite, one-half the capital required.

TRADE REPORT.

The general business in Chemicals during the past month has been almost of a retail character; and notwithstanding the cheapness of money and the prospects of a good harvest. buyers have shown little disposition to purchase, except for their immediate wants: prices are, with few instances, again in favour of the buyer. Only small sales have been made in Tartaric Acid at the reduced rates of 1s. 5d. to 1s. 5½d. Citric Acid is also lower: the latest sales made are at 1s. 9½d. Oxalic continues slow at 9¼d. to 9½d. Chlorate of Potass is dull at 13d. Bichromate is slow at 6d. nett. Prussiate of Potass is nominal at 11¼d. to 11½d. A good business has been done in Sulphate of Quinine at much lower prices: the last sales of Pelletier's made were at 5s. 1d., at which there are now sellers. English is reduced to 5s. 6d. Iodine is also cheaper and slow at 6d., with good dry seconds at 6⅛d. to 6¼d. Soda Crystals are in much better demand; sales made lately at 100s. to 105s., and Ash at 2d. to 2¼d. ex ship. Sulphate of Copper is steady at 27s. Rather more doing in Flour of Brimstone at 12s. 6d., and Roll at 10s. to 10s. 6d. Bleaching Powder is quiet at 10s. Small sales of Sal Ammoniac at 35s. 6d. and 37s. 6d. Sulphate of Ammonia is quiet at our quotations. Alum is rather lower, but a good business doing at the reduced rates; common to good £6 10s. to £7. Cream of Tartar is dull at 100s. for the best. There has been more business doing in refined Saltpetre, and the prices are steady at 29s. to 30s., according to quality and package. Canada Pot and Pearl Ashes are both easier and little doing. Linseed Oil is lower, and the demand trifling: spot and Hull 32s. 3d., and to the end of year 32s. 3d. to 32s. 6d. Rape is quiet at 42s. 6d., and 45s. 6d. to 46s. Cocoa Nut is a trifle easier. Rosin is dull and lower. Turpentine is much lower, and only small: French on the spot 49s., and next week's arrival 47s. 6d. Petroleum is dull at 2s. 5d. to 2s. 6d. per gallon.

In the Drug Market business has been limited; buyers have taken just sufficient for their immediate wants, and prices in some cases are rather easier. East India and Turkey Gum Arabics are rather cheaper. Shellac is fully 20s. lower for the common kinds, Balsam Capivi is rather lower. Several parcels of China Rhubarb have been offered, and the late high prices not being offered, they have been chiefly bought in. Cod Liver Oil is 2s. to 3s. per gallon lower. Castor Oil is steady. Citronelle is rather cheaper, 3¾d. to 4d.; fine 4½d. to 4¾d. Cassia steady at 8s. Aniseed slow at 7s. 6d. to 7s. 7d. spot and for arrival. China Camphor is easier; 100 cases in lead sold at 112s. 6d. Turkey Opium is 6d. to 1s. cheaper; good and fine, 12s. to 13s. Roll Annatto is ½d. to 1d. dearer. Bark is generally without change. Cape Aloes steady. East India rather easier. Cardamoms without change. Gamboge is rather lower from the late high prices. Turmeric is more in request. Gambier is rather easier. Cutch is steady. Ipecacuanha is quiet at 10s. 3d. to 10s. 6d. Jalap slow at 5s. to 5s. 3d. for fine. Beeswax is steady. In other goods no change.

PRICE CURRENT.

These quotations are the latest for ACTUAL SALES *in Mincing Lane. It will be necessary for our retail subscribers to bear in mind that they cannot, as a rule, purchase at the prices quoted, inasmuch as these are the* CASH PRICES IN BULK. *They will, however, be able to form a tolerably correct idea of what they ought to pay.*

	1865.		1865.		1864.		1864.	
	s.	d.	s.	d.	s.	d.	s.	d.
ARGOL, Cape, per cwt.	80	0	97	6	87	6	100	0
French	60	0	85	0	60	0	84	0
Oporto, red	45	0	47	0	46	0	48	0
Sicily	72	6	75	0	74	0	77	0
Naples, white	68	0	76	0	65	0	80	0
Florence, white	85	0	90	0	87	6	95	0
red	80	0	85	0	80	0	85	0
Bologna, white	90	0	95	0	90	0	95	0
ARROWROOT..(duty 4½ per cwt.)								
Bermuda..per lb.	1	0	1	6	1	4	1	9
St. Vincent	0	2½	0	6¼	0	4¼	0	7½
Jamaica	0	3½	0	6	0	4	0	6
Other West India	0	1	0	3	0	3	0	4½
Brazil	0	2½	0	3	0	2	0	3
East India	0	2¼	0	3½	0	3½	0	6
Natal	0	4	0	8¾	0	5½	0	10
Sierra Leone	0	3½	0	4½	0	4	0	5½
ASHES....per cwt.								
Pot, Canada, 1st sort	29	6	30	0	33	0	0	0
Pearl. ditto, 1st sort	30	6	31	0	34	0	35	0
BRIMSTONE,								
rough....per ton	150	0	0	0	150	0	0	0
roll	195	0	210	0	200	0	0	0
flour	245	0	250	0	240	0	0	0
CHEMICALS,								
Acid—Acetic, per lb.	0	4	0	0	0	4	0	0
Citric	1	9½	1	10	1	7½	1	7½
Nitric	0	5	0	5½	0	5	0	5½
Oxalic	0	9½	0	10	0	10	1	0
Sulphuric	0	0⅝	0	0¾	0	0⅝	0	0
Tartaric crystal	1	5	1	5¼	1	7½	0	0
powdered	1	6	0	0	1	7½	0	0
Alum ....per ton	130	0	140	0	120	0	125	0
powder	160	0	165	0	140	0	145	0
Ammonia, Carbonate, per lb.	0	5	0	5¼	0	5½	0	6
Sulphate ....per ton	260	0	280	0	260	0	280	0
Antimony, ore	160	0	180	0	200	0	210	0
crude ....per cwt	24	0	25	0	26	0	0	0
regulus	34	0	0	0	36	0	37	0
French star	34	0	0	0	36	0	37	0
Arsenic, lump	15	0	15	6	14	0	14	6
powder	6	3	6	6	7	6	8	0
Bleaching powder	10	0	10	6	13	0	14	0
Borax, East India refined..	0	0	0	0	0	0	0	0
British	54	0	55	0	56	0	0	0
Calomel ....per lb.	2	8	0	0	2	11	0	0
Camphor, refined	1	6	1	7	1	3	0	0
Copperas, green ....per ton	52	6	53	0	52	6	55	0
Corrosive Sublimate, per lb.	2	3	0	0	2	3	0	0
Green Emerald	0	0	0	0	0	0	0	0
Brunswick.... per cwt.	0	0	0	0	0	0	0	0
CHEMICALS.								
Iodine, dry .... per oz.	0	6	0	6¼	0	6¾	0	6¾
Magnesia, Carbon per cwt...	42	6	45	0	42	6	45	0
Calcined . per lb.	1	6	1	8	1	6	1	8
Minium, red .... per cwt.	21	6	24	6	21	0	21	6
orange	32	6	33	0	32	6	33	0
Potash, Bichromate per lb.	0	6	0	0	0	7	0	0
Chlorate	1	1	0	0	1	1¼	1	1½
Hydriodate..per oz.	0	5½	0	6¼	0	6	0	6½
Prussiate....per lb.	0	11¼	0	11½	0	11½	0	11¾
red	1	9	1	9½	1	10	1	11
Precipitate, red .... per lb.	2	9	0	0	3	0	0	0
white	2	9	0	0	3	0	0	0
Prussian Blue	1	0	1	10	1	0	1	10
Rose Pink ....per cwt.	29	0	0	0	29	0	0	0
Sal-Acetos ....per lb.	0	11½	0	0	1	0½	0	0
Sal-Ammoniac ....per cwt.								
British	35	6	87	6	35	0	37	6
Salts, Epsom	8	6	0	0	8	0	8	6
Glauber	5	0	5	6	5	0	5	6
Soda, Ash....per deg.	0	2	0	2⅛	0	2⅛	0	2¼
Bicarbonate..per cwt.	11	3	0	0	11	9	12	0
Crystals ....per ton	97	6	0	0	95	0	97	6
Sugar Lead, white per cwt.	37	0	37	6	38	0	39	0
brown	26	0	26	6	28	0	29	0
Sulphate Quinine....per oz.								
British, in bottle ..	5	0	0	0	6	3	6	6
Foreign	5	1	0	0	5	10	6	0
Sulphate Zinc....per cwt.	14	6	15	0	14	6	15	0
Verdigris....per lb.	0	11	1	0	0	11	1	0
Vermilion, English	2	11	3	0	2	8	3	0
China	2	4	2	6	2	9	2	10
Vitriol, blue or Rom. per ct.	27	0	0	0	81	0	32	0
COCHINEAL, per lb.								
Honduras, black	3	2	4	6	3	3	4	7
silver	3	0	3	6	2	6	3	6
Mexican, black	3	2	3	7	3	2	3	6
silver	2	10	3	0	3	0	3	3
Lima	0	0	0	0	0	0	0	0
Teneriffe, black	3	2	3	11	3	4	4	6
silver	3	0	8	3	8	1	3	3
DRUGS,								
Aloes, Hepatic ....per cwt.	100	0	170	0	100	0	170	0
Socotrine	160	0	290	0	170	0	300	0
Cape, good	41	0	43	0	45	0	47	0
inferior	24	0	44	0	30	0	44	0
Barbadoes	40	0	300	0	50	0	320	0
Ambergris, grey ....per oz.	21	0	25	0	15	0	19	0
Angelica Root ....per cwt.	20	0	35	0	20	0	35	0
Aniseed, China star	160	0	165	0	120	0	130	0
German, &c.	24	0	40	0	20	0	39	0
Balsam, Canada ....per lb.	0	10	0	0	0	11	0	0
Capivi	1	7	2	0	1	8	1	9
Peru	4	4	4	6	4	9	4	11
Tolu	3	3	3	4	3	6	8	7
Bark, Cascarilla....per cwt.	24	0	34	0	25	0	40	0
Peru, crown & grey per lb.	0	9	2	0	1	0	2	0
Calisaya, flat	2	4	2	10	3	0	4	0
quill	2	3	2	9	2	9	3	3
Carthagena	0	10	1	9	1	2	2	0
Pitayo	0	10	2	2	1	8	2	6
Red	2	0	10	0	2	6	8	9
Bay Berries....per cwt.	0	0	0	0	0	0	0	0
Bucca Leaves....per lb.	0	4	0	10	0	3	1	0
Camomile Flowers	20	0	65	0	25	0	65	0
Camphor, China	112	6	115	0	92	6	0	0
Canella alba	23	0	33	0	23	0	35	0
Cantharides ....per lb.	2	2	2	3	2	4	2	6
Cardamoms, Malabar, good	6	3	7	0	5	6	6	0
inferior	4	6	6	0	4	0	5	0
Madras	2	9	5	3	3	3	5	0
Ceylon	3	0	4	0	5	0	5	2
Cassia Fistula....per cwt.	25	0	35	0	20	0	35	0
Castor Oil, 1st pale ..per lb.	0	6¼	0	7¼	0	5½	0	7
2nd	0	5	0	6	0	4¾	0	5½
inferior and dark	0	4½	0	5	0	4¼	0	4½
Bombay, in casks	0	4¼	0	4¾	0	4¼	0	4¾
Castorum	1	0	20	0	1	0	20	0
China Root ....per cwt.	20	0	22	6	15	0	20	0
Cocculus Indicus	25	0	27	0	16	0	22	0
Cod Liver Oil ....per gal.	8	6	8	0	6	0	12	6
Colocynth, apple ....per lb.	0	7	1	0	0	7	1	0
Colombo Root ....per cwt.	160	0	210	0	90	0	120	0
Cream Tartar								
French	97	6	100	0	115	0	0	0
Venetian	100	0	102	6	117	6	0	0
grey	90	0	92	6	95	0	100	0
brown	85	0	90	0	85	0	92	6
Croton Seed	90	0	95	0	70	0	80	0
Cubebs	82	6	85	0	97	6	100	0
Cummin Seed	19	0	23	0	21	0	32	0
Dragon's blood reed	200	0	320	0	200	0	300	0
lump	75	0	260	0	90	0	260	0
Galangal Root	15	0	17	0	18	0	20	0
Gentian Root	21	0	22	0	18	0	19	0
Guinea Grains .... per cwt.	85	0	95	0	130	0	137	6
Honey, Narbonne	40	0	80	0	40	0	80	0
Cuba	25	0	83	0	26	0	38	0
Jamaica	25	0	60	0	27	0	63	0
Ipecacuanha ....per lb.	10	5	10	6	8	0	8	3
Isinglass, Brazil	1	8	4	6	1	10	4	6
East India	1	0	4	1	0	6	4	3
West India	2	10	3	2	3	2	3	4
Russian	9	6	10	9	9	6	11	0
Jalap	1	0	5	3	0	9	5	2

	1865.		1865.		1864.		1864.	
DRUGS—*continued.*								
Juniper Berries ....per cwt.	s.	d.	s.	d.	s.	d.	s.	d
German and French ..	7	0	9	0	6	0	9	0
Italian	9	0	10	0	8	0	10	0
Lemon Juice ......per deg.	0	0¾	0	0¾	0	0½	0	0¾
Liquorice ....per cwt.								
Spanish	75	0	80	0	80	0	83	0
Italian	55	0	75	0	55	0	70	0
Manna, flaky	2	0	2	6	2	7	2	9
small	1	2	1	4	1	4	0	0
Musk ....per oz.	22	0	32	0	20	0	34	0
Nux Vomica	11	6	14	6	12	0	15	6
Opium, Turkey	11	0	13	0	17	0	20	0
Egyptian	0	0	0	0	10	0	16	0
Orris Root ......per cwt.	29	0	31	0	26	0	30	0
Pink Root .... per lb.	3	0	0	0	3	0	3	6
Quassia (bitter wood) per ton	65	0	70	0	85	0	105	0
Rhatany Root ......per lb.	0	5	1	6	1	0	1	9
Rhubarb, China, round	3	0	9	0	2	9	6	0
flat	4	6	9	0	3	0	6	3
Dutch, trimmed ..	10	0	0	0	0	0	0	0
Russian	10	0	12	0	12	6	13	0
Saffron, Spanish	30	0	33	0	35	0	36	0
Salep.............. per cwt.	170	0	180	0	140	0	145	0
Sarsaparilla, Lima	1	0	1	4	1	0	1	5
Para	0	11	1	1	0	11	1	2
Honduras	0	10	1	7	0	11	1	6
Jamaica	1	1	2	3	1	6	2	3
Sassafras ....per cwt.	15	0	16	0	14	0	15	0
Scammony, virgin ..per lb.	30	0	35	0	32	0	38	0
second	14	0	23	0	12	0	23	0
Seneka Root	2	10	3	0	3	8	3	10
Senna, Calcutta	0	0	0	0	0	0	0	0
Bombay	0	4	0	6	0	3½	0	4½
Tinnevelly	0	4	1	3	0	4	1	6
Alexandria	0	8	0	9	0	3½	0	8
Snake Root	3	0	3	3	4	6	4	9
Spermaceti, refined	0	11	0	0	1	0	1	1
Squills	0	1½	0	3¼	0	0¾	0	2¼
Tamarinds, E. India, per cwt.	15	0	17	0	20	0	22	0
West India	10	0	22	0	17	0	30	0
Terra Japonica—								
Gambier ....per cwt.	20	0	27	6	26	0	31	0
Cutch	24	0	25	6	26	0	26	6
Valerian Root, English	20	0	20	0	20	0	30	0
Vanilla, Mexican......per b.	20	0	35	0	26	0	38	0
Wormseed..........per cwt.	10	0	0	0	11	0	12	0
GUM—Ammoniac,drop,per cwt.	95	0	170	0	100	0	120	0
lump	35	0	85	0	30	0	85	0
Animi, fine pale	200	0	230	0	200	0	210	0
bold amber..........	190	0	220	0	190	0	210	0
medium	160	0	180	0	160	0	180	0
small and dark	100	0	150	0	100	0	155	0
ordinary dark	40	0	95	0	40	0	95	0
Arabic, E. I., fine pale picked	72	0	80	0	80	0	94	[illegible]
unsorted, good to fine	62	0	70	0	64	0	76	0
red and mixed	46	0	60	0	50	0	60	0
siftings	25	0	40	0	25	0	40	[illegible]
Turkey, picked, good to fine	130	0	180	0	120	0	160	0
second and inferior.	65	0	120	0	65	0	110	0
in sorts	32	0	50	0	32	6	50	0
Gedda	39	0	40	0	33	0	37	0
Barbary, white	60	0	70	0	57	0	64	0
brown	40	0	47	0	45	0	47	0
Australian................	29	0	36	0	30	0	35	0
Assafœtida, fair to good	25	0	55	0	38	0	75	0
Benjamin, 1st quality	340	0	900	0	350	0	630	0
2nd ,, ...	240	0	300	0	280	0	300	0
3rd ,, ...	50	0	240	0	50	0	240	0
Copal, Angola, red	70	0	80	0	85	0	95	0
pale	70	0	80	0	85	0	90	0
Benguela	55	0	80	0	70	0	90	0
Sierra Leone .. per lb.	0	8	0	10	0	4	1	0
Manilla...... per cwt.	23	0	37	0	25	0	55	0
Dammar, pale ......per cwt.	34	0	48	0	35	0	45	0
Galbanum	160	0	170	0	100	0	120	0
Gamboge, picked, pipe	250	0	300	0	150	0	190	0
in sorts	140	0	240	0	80	0	140	0
Guaiacum............per lb,	1	0	2	0	0	6	1	6
Kino .... per cwt.	340	0	500	0	320	0	500	0
Kowrie	23	0	56	0	20	0	45	0
Mastic, picked ...... per lb.	8	6	9	6	4	6	5	0
Myrrh, gd. and fine, per cwt.	130	0	140	0	140	0	180	0
sorts................	70	0	120	0	70	0	130	0
Olibanum, pale drop	68	0	75	0	78	0	91	0
amber and yellow	58	0	65	0	58	0	76	0
mixed and dark..	20	0	44	0	18	0	45	0
Senegal	65	0	80	0	75	0	80	0
Sandrac	77	0	97	6	80	0	100	0
Tragacanth, leaf	180	0	260	0	180	0	260	0
in sorts	100	0	130	0	100	0	130	0
OILS..................per tun	£	s.	£	s.	£	s.	£	s.
Seal	40	0	0	0	42	0	48	0
Sperm, body................	90	0	0	0	69	0	70	0
Cod	50	0	0	0	51	0	52	0
Whale, Greenland	0	0	0	0	0	0	0	0
South Sea, pale......	42	0	44	0	42	0	48	0
East India Fish......	30	0	0	0	37	0	40	0
Olive, Galipoli ...... per ton	53	0	54	0	61	0	62	0
	s.	d.	s.	d.	s.	d.	s.	d.
Florence, half-chest ..	20	0	0	0	20	0	21	0
Cocoanut, Cochin .. per cwt.	44	0	44	6	40	0	40	6
Ceylon	42	6	43	6	37	6	38	6
Sydney	36	0	41	6	34	0	38	0
Ground Nut and Gin.								
Bombay	39	0	40	0	38	6	40	0

	1865.		1865.		1864.		1864	
OILS—*continued.*	s.	d.	s.	d.	s.	d.	s.	d.
Madras ....per cwt.	38	6	40	0	39	0	0	0
Palm, fine	36	0	37	0	35	0	36	0
Linseed	32	8	32	0	38	0	39	0
Rapeseed, English, pale	45	6	46	0	43	0	43	6
brown	42	6	0	0	41	6	42	6
Foreign pale	45	0	46	0	45	6	46	0
brown	42	6	0	0	42	6	43	0
Lard	60	0	0	0	46	0	47	6
Tallow	38	0	0	0	41	0	41	6
Rock Crude .... per ton	£19	0	£0	0	£19	0	£19	10
OILS, Essential—								
Almond, essential ....per lb	0	0	0	0	0	0	0	0
expressed	0	10½	0	0	0	0	0	0
Aniseed	7	6	7	7	6	7	6	9
Bay ....per cwt.	0	0	0	0	110	0	120	0
Bergamot ....per lb.	9	0	14	0	7	0	10	0
Cajeputa, (in bond) ..per oz.	0	2	0	2½	0	2½	0	2
Caraway ....per lb.	5	0	6	6	4	3	5	6
Cassia	8	0	0	0	9	0	9	8
Cinnamon (in bond) ..per oz.	1	2	8	3	0	9	3	0
Cinnamon Leaf	0	5	0	8	0	2	0	4
Citronel	0	3¾	0	4¾	0	5½	0	5
Clove	0	0	0	0	0	2	0	4
Croton	1	0	1	8	0	9	1	6
Juniper..............per lb.	2	0	2	6	1	10	3	0
Lavender	1	9	2	10	2	6	4	6
Lemon	6	9	9	0	5	6	7	0
Lemongrass..........per oz.	1	3	1	6	0	10½	0	11
Mace, ex.	0	1	0	2½	0	2	0	3
Neroli	5	0	5	9	5	0	7	0
Nutmeg	0	1½	0	3½	0	1	0	2
Orange ....per lb.	5	6	6	5	5	6	6	9
Otto of Roses ....per oz.	18	0	22	6	16	0	24	0
Peppermint, per lb.								
American	13	6	14	0	9	0	12	9
English	0	0	0	0	34	0	36	0
Rhodium ....per oz.	0	0	0	0	0	0	0	0
Rosemary ....per lb.	2	0	2	3	0	0	0	0
Sassafras	3	3	3	6	3	9	4	0
Spearmint..................	5	0	8	0	5	0	8	0
Spike	0	0	0	0	0	0	0	0
Thyme	1	9	2	3	0	0	0	0
PITCH, British ......per cwt.	12	0	0	0	12	0	0	0
Swedish	0	0	0	0	0	0	0	0
SALTPETRE, per cwt.								
English, 6 per cent. or under	24	0	24	6	33	6	34	6
over 6 per cent.	25	0	25	6	32	0	34	0
Madras	21	0	23	0	30	6	32	6
Bombay....................	20	0	22	0	30	0	31	0
British-refined	29	0	30	0	36	6	37	0
Nitrate of soda............	13	6	14	0	15	6	16	6
SEED, Canary ....per qr.	36	0	46	0	52	0	58	[illegible]
Caraway, English .. per cwt.	0	0	0	0	28	0	34	[illegible]
German, &c.	0	0	0	0	27	0	30	0
Coriander	0	0	0	0	10	0	14	0
East India........	0	0	0	0	0	0	0	0
Hemp......................	44	0	46	0	40	0	44	0
Linseed, Black Sea..........	56	0	57	0	62	6	63	0
Calcutta	56	0	58	0	58	0	64	0
Bombay	57	0	59	0	64	0	65	0
Egyptian	53	0	0	0	62	0	0	0
Mustard, brown....per bshl.	6	0	10	0	7	0	12	0
white	11	0	13	0	7	0	9	0
Poppy, East India....per qr.	53	6	54	0	54	0	55	0
Rape, English	0	0	0	0	0	0	0	0
Danube	61	0	62	0	0	0	0	0
Calcutta fine..........	58	0	60	0	57	0	60	0
Bombay	70	0	71	0	66	0	70	0
Teel, Sesmy or Gugy.........	60	0	64	0	58	0	63	0
Cotton ....per ton	150	0	0	0	150	0	152	6
Ground Nut Kernels per ton	270	0	0	0	300	0	310	0
SOAP, London yel. .. per cwt.	28	0	32	0	20	0	34	0
mottled	32	0	36	0	34	0	36	0
curd	46	0	50	0	46	0	50	0
Castile	40	0	42	0	40	0	41	0
Marseilles	40	0	42	0	40	0	42	0
Soy, China ....per gal.	3	3	3	6	2	9	3	0
Japan	1	6	0	0	0	0	0	0
Sponge, Turkey, fine picked	19	0	23	0	19	0	23	0
fair to good	7	0	17	0	7	0	17	0
ordinary ..	2	6	6	0	2	6	6	0
Bahama ..	0	4	1	3	0	4	1	3
TURPENTINE, Rough, per ct.	0	0	0	0	0	0	0	0
Spirits, French	48	6	0	0	68	0	68	6
American, in casks	0	0	0	0	0	0	0	0
WAX, Bees, English	180	0	185	0	170	0	175	6
German	190	0	200	0	162	6	185	0
American	185	0	0	0	175	0	0	0
white fine	0	0	0	0	0	0	0	0
Jamaica	195	0	200	0	185	0	192	6
Gambia	190	0	195	0	175	0	195	0
Mogadoro	130	0	170	0	130	0	167	6
East India..............	150	0	190	0	150	0	180	0
ditto, bleached	200	0	220	0	200	0	240	0
vegetable, Japan	56	0	68	[illegible]	56	0	66	0
WOOD, DYE, per ton								
Fustic, Cuba..........	160	0	180	0	160	0	170	0
Jamaica	105	0	110	0	125	0	130	0
Savanilla	120	0	0	0	125	0	0	0
Zante	0	0	0	0	140	0	110	0
Logwood, Campeachy	180	0	190	0	190	0	200	0
Honduras ..	100	0	0	0	105	0	110	0
St. Domingo	75	0	85	0	90	0	0	0
Jamaica	75	0	77	6	75	0	80	0